REPORT RESUMES

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EMOTIONAL REACTIONS TO LEARNING SITUATIONS AS RELATED TO THE LEARNING EFFICIENCY OF MENTALLY RETARDED CHILDREN.
BY- RINGNESS, T. A.
WISCONSIN UNIV., MADISON
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THE RELATIONSHIPS OF THE SELF-CONCEPTS, LEVELS OF ASPIRATION, AND EMOTIONAL REACTIONS OF MENTALLY RETARDED CHILDREN TO THEIR PROBLEM-SOLVING SITUATIONS AND INDIVIDUAL LEARNING EFFICIENCIES WERE STUDIED, USING NORMALLY DEVELOPING AND BRIGHT STUDENTS FOR COMPARISON. A GROUP OF 40 FOURTH-GRADE CHILDREN WAS SELECTED TO REPRESENT EACH OF THE ABOVE THREE CHILD CATEGORIES. PSYCHOLOGICAL, MEDICAL, AND SCHOLASTIC ACHIEVEMENT DATA WERE ADMINISTERED, COLLECTED, AND EVALUATED FOR EACH PARTICIPANT OVER A 2-YEAR PERIOD. STUDY RESULTS SHOW THAT MENTALLY RETARDED SUBJECTS MAY BE CHARACTERIZED AS BEING EAGER TO PLEASE, FRIENDLY, REASONABLY HAPPY IN THEIR CLASSROOMS, BUT EXHIBITING UNDERLYING ANXIETY. THEY ARE NOT AS REACTIVE TO STIMULI NOR DO THEY APPEAR TO DIFFERENTIATE STIMULI IN THE SAME MANNER AS AVERAGE OR BRIGHT SUBJECTS. THE RETARDED ARE NOT REALISTIC IN SELF-CONCEPT, NOR RELIABLE IN VERBALIZING SELF-CONCEPTS, AND DO NOT DIFFERENTIATE AREAS OF THE SELF-CONCEPT WELL. LEVELS OF ASPIRATION ARE UNREALISTIC AND UNRELIABLE, AND EFFICIENCY OF PROBLEM-SOLVING OR LEARNING OF ARITHMETIC IS LOW. HOWEVER, INDIVIDUAL DIFFERENCES ARE FOUND AMONG THE RETARDED, AS AMONG OTHER SUBJECTS, AND SOME DID UNEXPECTEDLY WELL IN CERTAIN AREAS MEASURED. A GREAT DEAL OF WORK STILL NEEDS TO BE DONE IN AREAS SAMPLED IN THIS STUDY, AND SUGGESTIONS ARE INCLUDED WITHIN EACH SECTION. (JH)

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FINAL REPORT

Emotional Reactions to Learning Situations as Related to the Learning Efficiency of Mentally Retarded Children.

The research embodied in this report was done pursuant to Contract SAE 6434 between the U. S. Department of Health, Education, and Welfare and the University of Wisconsin.

T. A. Ringness, Project Director

Robert Fischer
Elmira Layague
Cyril Alberga
Zacharia Ethnasios
Project Assistants

June 30, 1959

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Title of Research Project. Emotional reactions to learning situations as related to the learning efficiency of mentally retarded children.

Statement of the Problem. The over-all problem is that of attempting to discover the relationships between certain aspects of the self concept, level of aspiration, emotional reactions to learning situations, and the learning efficiency of mentally retarded children, using normally developing and bright children for purposes of comparison. The following hypotheses were proposed:

1) Mentally retarded children possess unrealistic self concepts and subsequent unrealistic levels of aspiration in certain school learning situations as compared to normally developing children.
2) Mentally retarded children become more emotionally disturbed than normally developing children when faced with certain school learning situations.
3) Efficiency of certain kinds of problem-solving behaviors of mentally retarded children can be improved by teaching them more realistic self concepts, levels of aspiration, and ways of reacting emotionally.

Section I

General Procedure of the Study

The Sample

Twenty boys and 20 girls of low intelligence, 20 boys and 20 girls of normal intelligence, and 20 boys and 20 girls of high intelligence were used each of the two years of this study. Of the total sample of 120 children involved during the academic year 1957-1958, 105 were again involved during the year 1958-1959, replacements being found for the 15 dropped from the study. Subjects were required to have birth dates falling between September 15, 1947, and December 15, 1948, and during the first year of study were of fourth grade age. During the first year of the study, 1957-1958, subjects were enrolled in 23 classrooms of the Madison and Milwaukee (Wisconsin) public schools, whereas 29 classrooms were employed during the year 1958-1959.

After an initial survey of test scores available through the offices of the school psychologists of the two school systems, subjects were tentatively identified and WISC tests were given by school psychologists from the Wisconsin Diagnostic Center at Madison. During the second year of the study, a project assistant was employed to retest the subjects in the city of Madison, school psychologists performing that task in Milwaukee.

Mentally retarded children were originally chosen to meet the criteria of a WISC IQ between 50 and 80, lack of debilitating physical deficiencies, and placement in special classrooms for the educable mentally retarded. Sixteen of these children were enrolled in 2 special classrooms in Madison, and represented all of the children fulfilling the criteria available at this time. Twenty four of the subjects were enrolled in 10 special classrooms in Milwaukee, and were chosen by the school psychologists as meeting criteria. For practical purposes this represents the entire population fulfilling criteria in Madison and approximately 40% of the population in Milwaukee. During the second year of the study, the mentally retarded subjects were enrolled in 3 special classrooms in Madison and in 11 special classrooms in Milwaukee. Four of the original 40 mentally retarded subjects either moved or tested out of the IQ group and were replaced during the second year of the study.

Normally developing children met the criteria of age and a WISC IQ between 90 and 110, whereas bright children were of IQ 120 or above. The entire study was originally prospected for the city of Madison, and all normal and bright subjects were from regular fourth (and subsequently, fifth) grade classrooms in that city and were not segregated by IQ. Subjects were originally drawn randomly from 11 classrooms of participating schools. During the second year of the study, certain subjects tested out of their IQ range or moved. Thus 7 normal IQ and 4 bright children were replaced by 6 children dropped randomly during the first selection, and 5 new subjects were obtained, the attempt being made to keep the distribution and means of the IQ groups as similar each year as possible. While not a completely random sample, there is no basis for believing that these children are different from those who might have been obtained from any portion of the total population of Madison.

Table 1 shows IQ distribution and chronological age in months as of October 15, 1957. Table 2 shows comparable data for 1958.

TABLE 1. CHRONOLOGICAL AGE AND WISC IQ SCORES OF 120 MENTALLY RETARDED, AVERAGE, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, OCTOBER, 1957.

IQ Level	Chronological Age			WISC IQ		
	Mean	S. D.	Range	Mean	S. D.	Range
20 Ret. Boys	113.05	4.63	108-120	66.35	6.27	56-81
20 Ret. Girls	112.75	4.21	106-119	63.55	4.75	56-72
20 Ave. Boys	112.75	3.99	107-119	102.75	5.22	91-110
20 Ave. Girls	113.00	4.03	106-120	101.65	6.28	90-109
20 High Boys	112.50	3.27	107-120	126.45	5.86	120-146
20 High Girls	111.20	3.88	106-120	125.15	4.44	120-135

TABLE 2. CHRONOLOGICAL AGE AND WISC SCORES OF 120 MENTALLY RETARDED, AVERAGE, AND BRIGHT CHILDREN OF FIFTH GRADE AGE, OCTOBER, 1958.

IQ Level	Chronological Age			WISC IQ		
	Mean	S.D.	Range	Mean	S.D.	Range
20 Ret. Boys	124.8	5.12	120-132	69.1	7.39	52-85
20 Ret. Girls	124.5	4.37	118-131	64.7	6.89	51-76
20 Ave. Boys	124.5	4.74	119-131	106.9	5.67	99-118
20 Ave. Girls	124.9	4.60	118-130	103.4	7.38	89-117
20 High Boys	124.5	4.05	119-132	128.7	8.28	114-146
20 High Girls	122.9	3.36	118-129	129.0	7.49	117-141

Table 3 shows personnel changes in subjects between 1957 and 1958 selections. It is evident that strictly speaking, one cannot compare data obtained during the first year of the study with that of the second year, yet the samples are essentially similar and study of comparable data may lead to tentative inferences.

TABLE 3. PERSONNEL CHANGES IN SUBJECTS, 1957-1958 TO 1958-1959.

	Dropped		Added in 1958-59	
Group	Subject No.	1957 WISC IQ	Subject No.	1958 WISC IQ
High IQ Boys	14457	127	14710	128
	14462	121	14525	117
High IQ Girls	24564	120	24300	141
	23184	122	24713	124
Ave. IQ Boys	14315	108	14758	114
	14464	107	14313	112
	14559	106	14303	109
	14500	96	14718	99
Ave. IQ Girls	24527	106	24573	104
	23191	102	23183	101
	24508	92	24712	99
Low IQ Boys	17229	82	18298	85
	18262	71	18303	73
	18240	56	18302	72
Low IQ Girls	27283	72	28248	59

Procedures

For purposes of economy and intensive study of the sample this study was partly coordinated with that of H. J. Klausmeier (Contract SAE 484-2262). The sample was common to each study, collection of data was made jointly, and certain data were shared. Data applicable to the present study were obtained through the following procedures:

1. WISC IQ's were obtained by school and clinical psychologists to aid in determining the sample, after a preliminary check of test scores possessed by the schools had been made. WISC retesting was done in 1958-1959.

2. Physical examinations were made during the first year of the study by University of Wisconsin Hospital physicians and by physicians of the Health Department of Milwaukee.

3. The California Achievement Tests, Primary form, were given to mentally retarded children. Tests were administered in very small groups and directions modified so that reading ability was not a test factor except for the tests of reading per se. Examiners were project directors and their assistants. The Intermediate form of the CAT was administered to normal and bright children.

4. Psychological examinations were given and ratings made during each year of the study by school psychologists and psychologists from the Wisconsin Diagnostic Center at Madison. Included were the Rorschach, parts of the TAT, a figure-drawing test, and a clinical interview.

5. Teacher ratings of estimate of child's progress (related to the self concept) were obtained five times during 1957-1958 and three times during 1958-1959.

6. Sociometric material was gathered on all subjects during each year of the study.

7. Five arithmetic learning tasks were individually administered to each subject, three during 1957-1958 and two during 1958-1959. Each task involved the following procedures:

7-1. A retest of learning from the previous task, except for the initial task each year.

7-2. A survey to determine the level of achievement of the subject for the task to be introduced..

7-3. Teaching of the new task at a level one step above subject's present accomplishment.

7-4. Administration of an acquisition test of material learned.

7-5. Provision of a distractor period of five minutes during which the child read books, conversed, or listened to music.

7-6. A five-minute interval retention test material taught at this sitting.

7-7. A level of aspiration estimate.

7-8. A self concept rating device.

During the entire sitting (or task) GSR data were obtained and observations made of the subject by the GSR operator. A final retention measure was administered six weeks after the last task. At this time reliability checks of teacher ratings were made.

Arithmetic tasks administered during 1957-1958 were (a) counting by 1's, 2's, or other intervals at the level of the subject; (b) a problem which required subjects to divide a given number of pennies among a given number of their "very good friends"; (c) simple addition. During 1958-1959 tasks were (d) simple subtraction and (e) a problem of making a given money amount from a given number of coins of various denominations. Tasks contained items of graded difficulty, in part developed from a study of curriculum guides used in the schools from which the sample was drawn.

Section II

The Self Concept

Hypothesis 1 stated that "mentally retarded children possess unrealistic self concepts and subsequent unrealistic levels of aspiration in certain school learning situations as compared to normally developing children." This section of the report describes the attempt to test the accuracy of this hypothesis.

Background of the Hypothesis

An extensive treatment of the literature on the self concept can be found in Taylor's (1953) doctoral dissertation which reviews the work of Raimy (1943) as an originator of the term, and of Rogers (1951), Snygg and Combs (1949) and others. In the present study the self concept will be considered to be the more or less organized perceptual object resulting from present and past self-observation and is, in effect, what a person believes about himself. The self concept is thought to be intricate and complex, with systems and subsystems, and may have varying degrees of relationship to external reality.

The self concept influences behavior and is itself altered and restructured by behavior and unsatisfied needs. It is considered to be reasonably stable, and to reflect varying degrees of self-awareness. Snygg and Combs (1949), using the term "phenomenal self", consider that motivation of behavior is in terms of acting to preserve or enhance the self concept. In this context, threatening aspects of the environment, frustration, or behavior of the individual which does not result in satisfying those needs may result in emotions such as fear, anger, or depression. The individual may then use a number of behaviors related to such emotions, i.e. attack, withdrawal, or rigidity. Competitiveness of individuals in some situations may reflect the desire to enchance a self concept which may be entirely adequate, and challenged rather than threatened.

That the self concept may be related to intelligence, family background, and parental attitudes and behaviors seems well established. McLachlan (1955) states that the mentally defective or backward child has low stress tolerance, and this may lead to disturbed behavior, for

> . . . if his aspiration exceeds his capacity or performance, trouble results. No one can be emotionally stable and content in the face of an unsatisfying self-estimate. . . it is seldom that his integration is sufficient to allow him a reasonable self-estimate of exactly where he stands in relation to his community, and without this, he must always be in a state of uncertainty and insecurity. (McLachlan, 1955, p. 325-6)

The self concept may be inferred in various ways, both from self report of the subject, or from inference from his behavior. In the latter instance a person may behave "as if" he thought he were this or that sort of person. Information from these sources demonstrates that the self concept may be either positive or negative, and it may be expected that the subject who has many negative feelings about himself may be either defensive (withdrawing, rebellious, aggressive) or discouraged (refusing to compete).

Typical study of the self concept has been with the Q-technique, the provision of a quantity of items or questions which might describe aspects of the personality and which are to be placed in categories by the subject as most characteristic of him, next most characteristic, and so on. The Q-sort technique in which the items are placed on separate cards and are placed in piles by categories by the subject offers some advantages. In either case, numerical values are assigned to the categories and statistical treatment if facilitated. It has been found that consistency of self-analysis increases as the number of card sorts increases, as the subject continues to analyse himself. (Taylor, 1953)

In this study a rating sheet for self analysis was used, with a restricted number of items. The instrument was developed in part because the examiner needed to help interpret the items to some of the subjects, notably the mentally retarded, and because time restrictions did not permit the use of the Q-technique in its usual form. In order to compare the self-estimates with reality, items were chosen against which relatively objective measures could be weighed. Items chosen for self-estimates were in the areas of

a) arithmetic achievement or success,
b) reading achievement or success,

c) language achievement (spelling, grammar, verbal usage),
d) acceptability to peers,
e) acceptability to adults,
f) motor, games, or sports ability, and
g) intelligence,

Measures of the Self Concept

Eight items were used to assess the child's beleif of his success in learning arithmetic; English, spelling, and writing; reading; acceptance by peers; acceptance by adults; leadership of peers; and intelligence. During the first year of the study subjects were asked to rate themselves on the form illustrated in Appendix A, as among the best through five scale divisions down to among the poorest. Mentally retarded subjects did not always immediately understnad the import of the questions, and were aided by the examiner, after suitable probing, in making their ratings. Normal and bright subjects were allowed to mark their own rating sheets and were given help only if requested.

No frame of reference was provided the subjects during 1957-1958, so that tests of reality of self concept ratings were at first tested on the basis of both national and classroom test norms. The national test norms (reading, arithmetic, intelligence, language) were subsequently found unsuitable for comparative purposes, since the retarded children were invariably among the lowest 3% and hence almost invariably over-rated themselves, the opposite being true for the bright children. Further, children were found to apparently use a frame of reference in comparison with their classmates and friends, as examination of the ratings displayed, so that for purposes of testing the hypothesis, only classroom norms were employed.

It was hypothesized during 1957-1958 that each scale division of the self concept measure represented 20% of the persons employed by the subjects in determining their frames of reference. During the second year of the study, 1958-1959, this was made explicit, and deciles, rather than 20% divisions were utilized. These differences in scale divisions and the making certain of the frame of reference have bearing on the comparative means, reality ratings, and factor analysis, as will be shown later.

At the final retention session, a fourth self concept rating was made, followed in three days with a fifth rating in which scales were randomly reversed, providing a test-retest estimate portrayed in Tables 4 and 5.

TABLE 4. TOTAL-SCALE AND REPRESENTATIVE ITEM RELIABILITY COEFFICENTS FOR SELF CONCEPT RATINGS OF 120 CHILDREN OF FOURTH GRADE AGE, 1957-1958.

Group	Item 1	Item 4	Total - Scale
Retarded Boys	.053	.200	.221
Retarded Girls	.568	.562	.573
Average Boys	.515	.412	.599
Average Girls	.551	.709	.857
Bright Boys	.731	.882	.885
Bright Girls	.811	.781	.947

TABLE 5. CORRELATIONS BETWEEN SELF-CONCEPT SCORES (UNTRANSFORMED) ON TASKS 4 AND 5 FOR A RANDOM SAMPLE OF 25 SUBJECTS NOT INCLUDED IN TEACHER-INFLUENCE EXPERIMENT, 1958-1959.*

Item 1	.328
Item 4	.874
Total Scale	.812

*Because self concepts might be expected to change as a result of experimental practice (described later), a random sample of 12 high IQ, 7 average IQ, and 6 low IQ children was used for this reliability check.

Factor Analysis of Self Concept Ratings

It was decided to test the intercorrelations of self concept ratings obtained on Task 1 (1957-8) and Task 4 (1958-9) by factor analysis to see to what degree of differentiation of self concept might be demonstrated by the various IQ groups. Pearson product-moment correlations were calculated and centroid factors (Thurstone, 1947) obtained. Humphrey's rule of thumb (Fruchter, 1954) was applied to determine whether succeeding factors were significant after the first factor was extracted.

Table 6 shows intercorrelations for self concept ratings obtained for the mentally retarded group in 1957-1958. Table 7 shows the resulting factor matrix, only one factor found to be reasonably obtained from the data.

TABLE 6. INTERCORRELATIONS OF ITEMS ON SELF CONCEPT RATING SCALE, FIRST ADMINISTRATION, MENTALLY RETARDED SUBJECTS, 1957-1958.

Test	1	2	3	4	5	6	7
Arithmetic							
Reading	362						
Language	159	304					
Peers	061	265	198				
Adults	222	248	267	170			
Playground	204	307	203	-081	282		
Leadership	178	210	212	043	341	299	
Intelligence	231	160	463	005	246	283	262

TABLE 7. FACTOR MATRIX AND RESIDUALS BASED ON CORRELATION MATRIX, TABLE 6 ABOVE, USING CENTROID PROCEDURES, 1957-1958.

Test	1	2	h^2
Arithmetic	.46	-.11	.224
Reading	.57	-.37	.461
Language	.58	.12	.351
Peers	.24	-.34	.173
Adults	.54	.10	.301
Playground	.46	.26	.279
Leadership	.48	.22	.279
Intelligence	.54	.22	.340
	1.96	.45	

Tables 8 and 9 show the correlation and factor matrices for the average IQ subjects, Humphrey's rule again indicating that only one factor may be reasonably extracted.

TABLE 8. INTERCORRELATIONS OF ITEMS ON SELF CONCEPT RATING SCALE, FIRST ADMINISTRATION, NORMAL SUBJECTS, 1957-1958.

Test	1	2	3	4	5	6	7
Arithmetic							
Reading	308						
Language	394	359					
Peers	011	030	080				
Adults	312	224	329	386			
Playground	230	193	198	246	266		
Leadership	307	202	500	302	106	198	
Intelligence	422	338	223	224	120	250	477

TABLE 9. FATOR MATRIX AND RESIDUALS BASED ON CORRELATION MATRIX, TABLE 8 ABOVE, USING CENTROID PROCEDURES, 1957-1958.

Test	1	2	h^2
Arithmetic	.57	.26	.253
Reading	.48	.19	.267
Language	.61	.22	.421
Peers	.40	-.44	.354
Adults	.51	-.38	.405
Playground	.44	-.18	.226
Leadership	.62	.24	.442
Intelligence	.60	.23	.413
$\sum a^2_j$	2.28	.63	

Tables 10 and 11 indicate the comparable matrices obtained for bright children. Simple orthogonal rotation isolates two factors for this data: a factor in which beliefs about academic achievement and intelligence are concerned; and a factor in which acceptance by peers, acceptance by adults, peer leadership, and playground or sports success are combined.

TABLE 10, INTERCORRELATIONS OF ITEMS ON SELF CONCEPT RATING SCALE, FIRST ADMINISTRATION, BRIGHT SUBJECTS, 1957-1958.

Test	1	2	3	4	5	6	7
Arithmetic							
Reading	443						
Language	164	285					
Peers	139	008	-031				
Adults	207	355	072	598			
Playground	272	156	016	396	374		
Leadership	368	065	-006	458	234	445	
Intelligence	394	336	242	069	290	190	186

TABLE 11. FACTOR MATRIX AND RESIDUALS BASED ON CORRELATION MATRIX, TABLE 10 ABOVE, USING CENTROID PROCEDURES, 1957-1958.

				Rotated Factors	
Test	1	2	h^2	1	2
Arithmetic	.58	.28	.415	.21	.61
Reading	.50	.44	.444	.04	.67
Language	.25	.35	.185	-.07	.43
Peers	.54	-.57	.616	.78	-.02
Adults	.66	-.24	.493	.63	.32
Playground	.55	-.28	.391	.60	.22
Leadership	.53	-.28	.359	.58	.18
Intelligence	.50	.33	.359	.12	.60
	2.21	1.04			

Applying the rule, these factors are not highly significant, but seem to show a trend toward differentiation of the self concept by high IQ children. Although Table 9 tends to show that normal children may approach the factors isolated for bight children, the second factor was found not significant and rotation was not attempted. For bright children, reliabilities of self concept ratings were higher than for mentally retarded. It is evident that the mentally retarded sample did not verbalize self beliefs adequately, at least in connection with the procedures and instruments used in this study. Whether this may also reflect inadequately integrated self concepts cannot be determined from the above data, but will be discussed further in connection with psychologists' ratings.

Since both bright and normal children were taught in the same classrooms, it may be that normal children tended to do less well academically than bright children, but that they might be expected to have equal opportunity for social success, leadership, and motor-activity achievement. This should have been apparent through the appearance of two factors for data of both groups, but this was not the case. Accordingly, for the 1957-1958 data, it may be assumed that the bright group exhibited a higher degree of differentiation of self beliefs. The over-all results tend to substantiate the belief that self awareness, integration of self concept, and verbalization of self beliefs are results of mental ability, as well as of other personality variables.

Factor analysis was similarly attempted for Task 4, 1958-1959. Tables 12 and 13 present data for the mentally retarded group; Tables 14 and 15 for the average group; and Tables 16 and 17 for the bright children.

TABLE 12. INTERCORRELATIONS OF ITEMS ON SELF CONCEPT RATING SCALE, SECOND ADMINISTRATION, MENTALLY RETARDED SUBJECTS, 1958-1959.

Test	1	2	3	4	5	6	7
Arithmetic							
Reading	.290						
Language	.486	.306					
Peers	.625	.216	.437				
Adults	.397	-.058	.201	.616			
Playground	.613	.360	.539	.565	.286		
Leadership	.361	.193	.317	.516	.184	.288	
Intelligence	.170	.215	.175	.057	.116	.298	.093

TABLE 13. FACTOR MATRIX AND RESIDUALS BASED ON CORRELATION MATRIX, TABLE 12 ABOVE, USING CENTROID PROCEDURES, 1958-1959.

Test	I	2	h^2
Arithmetic	.762	-.041	.582
Reading	.402	.381	.307
Language	.641	.187	.446
Peers	.781	-.427	.792
Adults	.504	-.463	.468
Playgroud	.761	.221	.628
Leadership	.527	-.197	.317
Intelligence	.304	.310	.189
	4,682	-.029	

TABLE 14. INTERCORRELATIONS OF ITEMS ON SELF CONCEPT RATING SCALE, SECOND ADMINISTRATION, NORMAL SUBJECTS, 1958-1959.

Test	1	2	3	4	5	6	7
Arithmetic							
Reading	.616						
Language	.513	.740					
Peers	.620	.661	.530				
Adults	.562	.544	.449	.658			
Playground	.580	.574	.641	.554	.516		
Leadership	.659	.607	.618	.578	.490	.562	
Intelligence	.568	.671	.634	.599	.378	.628	.567

TABLE 15. FACTOR MATRIX AND RESIDUALS BASED ON CORRELATION MATRIX, TABLE 14 ABOVE, USING CENTROID PROCEDURES, 1958-1959.

Test	1	2	h^2
Arithmetic	.762	-.243	.640
Reading	.841	.119	.721
Language	.790	.318	.725
Peers	.789	-.205	.665
Adults	.691	-.334	.589
Playground	.749	.149	.583
Leadership	.774	-.065	.603
Intelligence	.765	.271	.659
	6.161	.010	

TABLE 16. INTERCORRELATIONS OF ITEMS ON SELF CONCEPT RATING SCALE, SECOND ADMINISTRATION, BRIGHT SUBJECTS, 1958-1959.

Test	1	2	3	4	5	6	7
Arithmetic							
Reading	.239						
Language	.080	.218					
Peers	.094	.436	.550				
Adults	.116	.533	.571	.350			
Playground	.328	.378	.356	.404	.441		
Leadership	.401	.391	.458	.528	.476	.507	
Intelligence	.617	.406	.284	.428	.459	.652	.478

TABLE 17. FACTOR MATRIX AND RESIDUALS BASED ON CORRELATION MATRIX, TABLE 16 ABOVE, USING CENTROID PROCEDURES, 1958-1959.

Test	1	2	h^2
Arithmetic	.455	.590	.555
Reading	.571	-.126	.342
Language	.562	-.273	.390
Peers	.775	-.423	.780
Adults	.809	-.476	.881
Playground	.700	.245	.551
Leadership	.688	.114	.486
Intelligence	.749	.414	.732
	5.309	.065	

As will be seen mentally retarded children again present only one factor, an attempt to extract a second showing that the second is not significant. Intercorrelations are somewhat higher than during the first year of the study although few are high. However, first factor loadings were considerably higher for the second year data.

It is also evident that average IQ children showed higher intercorrelations on data for the second year than for the first year's material. Again, contrary to expectation, only one factor could reasonably be extracted.

For bright children, intercorrelations were not particularly higher for either year of the study, and showed good differentiation between the items of the self concept scale. However, during the second year, only one factor could be reasonably extracted, contrary to the findings from 1957-1958, and contrary to expectation.

In seeking to explain the finds for the second year of the study, certain inferences may be drawn. It may be reasonably inferred that, since for low IQ groups intercorrelations were scattered, that chance effects were operating. That is, adequate differentiation of the items of the self concept scale were lacking for these children, as for the preceding year. Examination of original self rating data also shows that several of the subjects exhibited halo effect behaviors, as will be demonstrated in the data concerning reality of the self concept.

For the average IQ children, two factors may be operating. The fact that intercorrelations were high, and only one factor could be demonstrated may be due to the fact that these children in fact rated similarly on various items in terms of reality. That is, since both average and bright children were taught in the same classrooms, they may have been actually lower in areas covered by the self ratings. The apparent halo effect, then, is merely knowledge of reality. This will be discussed further in a later section of this report.

The fact that intercorrelations were relatively low for the bright children tends to show good differentiation among the items of the rating scale. The factor loadings, however, are not clear. However, examination of the second factor tends to show that arithmetic and intelligence may be related, peer and adult acceptance, playground and leadership achievement, language and reading. This might indicate a tendency to four factors, showing increased differentiation over the preceding year, but factor loadings would be extremely small for the third and fourth factors.

A final consideration must be made in that there is a twelve and one-half per cent change in personnel from one year to another; that subjects were definitely provided a frame of reference related to their classroom; rating on a ten-point instead of five-point scale was employed; and boredom may have occurred. That is, to an extent personnel, procedures, and instruments were different, making comparisons from one year to another extremely tenuous.

It is the contention of this researcher that from the above data it may be concluded that mentally retarded subjects do not differentiate the areas of the self concept well, rating themselves at random. Normal subjects may differentiate better than the retarded, but an apparent halo effect evident from high intercorrelations may be due to the realities of the classroom. Bright subjects, it is believed, are shown to differentiate the self concept better than either of the other two groups. This belief may be further tested by examination of the realities of self concept ratings discussed later.

Variances of Self Concept Ratings

To further examine the self concept ratings obtained on the three sittings of the first year and the two sittings of the second year, analysis of variance was employed. Inspection of the distribution of scores for individual items indicated that the variances of these distributions were not equal. In order to achieve equality of variance, the scores were transformed by Kelly's (1947) method which yields z-scores being different for each item of the self-rating scale. An arbitrary mean of 5 and standard deviation of 2 were assigned to the new distributions. To obtain the new scores, each z-score was multiplied by 2, the resulting figure was rounded to the nearest whole number, and the mean of 5 was added. Scores for the new distributions ranged from 0 to 8. The actual means and standard deviations which reulted from this transformation are presented in Table 18, 1957-1958.

TABLE 18. MEAN SELF CONCEPT RATINGS BASED ON TRANSFORMED SCORES FOR A COMBINATION OF THREE TASKS, 1957-1958.

	1	2	3	4	5	6	7	8	Total Scale
High IQ									
Girls	5.37	5.27	5.60	4.67	4.80	4.48	5.08	5.47	122.20
Boys	6.63	5.35	5.73	4.43	4.53	5.27	5.50	6.27	131.15
Total	6.00	5.31	5.67	4.55	4.67	4.87	5.29	5.87	126.68

TABLE 18 (CON'T)

Ave. IQ									
Girls	4.40	4.85	4.83	4.18	4.50	4.93	5.02	4.73	112.35
Boys	4.73	4.25	3.90	4.18	4.60	4.80	4.33	4.80	106.80
Total	4.56	4.55	4.37	4.18	4.55	4.87	4.67	4.77	109.58
Low IQ									
Girls	5.55	5.32	5.23	5.75	5.42	5.02	5.50	5.27	129.15
Boys	5.17	4.38	4.10	4.67	4.87	5.02	5.07	4.27	112.60
Total	5.36	4.85	4.67	5.21	5.14	5.02	5.28	4.77	120.88
Total									
Girls	5.11	5.14	5.22	4.87	4.91	4.81	5.20	5.16	121.23
Boys	5.51	4.66	4.58	4.43	4.67	5.03	4.97	5.11	116.85
Grand Total	5.31	4.90	4.90	4.65	4.79	4.92	5.08	5.13	119.04
S. D.	2.03	1.65	1.93	1.79	1.82	1.66	1.69	2.03	23.10
Variance	4.13	2.72	3.71	3.20	3.33	2.77	2.85	4.11	523.61

It will be seen that, as one might expect, bright boys and girls tended to rate themselves generally higher than did normal children. Since the bright children were in the same classroom groups as the normal children, it is logical that they tend to achieve more highly. In accordance with indications previously discussed (Sears, 1940), bright boys tended to rate themselves higher than did bright girls. However, in items 4 (peer acceptance) and 5 (adult acceptance) girls rated themselves somewhat higher than did boys. Girls rated themselves lower than did boys in items 6 (sports, playground, games), 7 (leadership), and 8 (intelligence). None of these findings are in discord with those of other studies.

For the average intelligence group, girls were less conservative than boys. In a dissertation related to this study, Enos (1958) found that the average IQ boys were the least well-adjusted, as a group, of the children in this study. This may account for the fact that these boys also rate themselves least highly of any of the three intelligence groups, and sustantially below the average IQ girls. In only three items, 1 (arithmetic), 5 (adult acceptance), and 8 (intelligence), did boys rank themselves higher than did the girls, and then not substantially so, except in the case of the arithmetic self rating which is probably related to sex differences.

Low IQ children tended to rate themselves higher than did average children, and low IQ girls rated themselves higher than high IQ girls. These children were in special classrooms for the educable mentally retarded, and their self concept ratings may reflect the secure atmosphere cultivated in these classrooms. This is lent substance by the fact that the low girls and boys rated themselves highest of any intelligence group on items 4 (peer acceptance) and 5 (adult acceptance), the atmosphere of these rooms, in the beliefs of the examiners, being highly acceptant. Items 6 (sports, playground, games) is no doubt a reflection of the activities of such classes. The ratings of the mentally retarded are less consistent than those of the average and bright children (see table for product-moment correlations by task and table for total scale means by tasks). It was felt that in some cases, even after much explanation and probing, some of the mentally retarded may not have been quite sure how to rate themselves. Nevertheless, sufficient consistency in results was obtained so that the present researcher believes that the difference in classrooms and the social values of relatively high levels of self estimate account for the mean self-rating figures. It will be seen that in no instance did the boys' estimates outrank those of the girls for this group, and approximation came only in item 6, on playground, sports, and games.

The over-all picture is that of the girls' self estimates exceeding the boys' in all items except those of arithmetic ability (item 1) and sports and playground ability (item 6). This seems consonant with the general beliefs that girls are likely to favor verbal activities such as reading and language, to be more compliant in social behavior, and through their developmental advantages and (possible) cultural advantages in regard to school mores, actually do achieve better than the boys. How realistic these self estimates were will be treated later.

TABLE 19. TOTAL SCALE INTERCORRELATIONS BETWEEN TASKS FOR SELF CONCEPT RATINGS OF 120 FOURTH GRADE AGE CHILDREN BASED ON RAW DATA, 5-POINT SCALE.

		R12	R23	R13
Girls	High IQ	.712	.779	.793
	Ave. IQ	.658	.848	.576
	Low IQ	.396	.743	.442
Boys	High IQ	.548	.729	.515
	Ave. IQ	.689	.857	.691
	Low IQ	.540	.393	.165

TABLE 20. TOTAL SCALE MEANS OF SELF CONCEPT RATINGS OF 120 FOURTH GRADE AGE CHILDREN BASED ON RAW DATA, 5-POINT SCALE.

		Task I	Task 2	Task 3	All Tasks	Item Mean
Girls	High IQ	29.65	30.20	30.55	30.13	3.77
	Ave. IQ	27.55	28.75	28.85	28.38	3.55
	Low IQ	28.50	32.00	33.20	31.23	3.90
Boys	High IQ	31.50	31.75	32.15	31.80	3.98
	Ave. IQ	27.15	26.50	27.60	27.08	3.39
	Low IQ	26.50	27.95	29.90	28.12	3.52

TABLE 21. ANALYSIS OF VARIANCE OF MEAN SELF CONCEPT RATINGS OF 120 FOURTH GRADE AGE CHILDREN.

Source of Variation	Sum of Squares	df	Mean Square	F	p
IQ	252.07	2	126.04	6.37	<.01
Sex	24.08	1	24.02	1.21	>.05
IQ & Sex	136.32	2	68.16	3.45	<.05
Individual	2255.45	114	19.78		
Item	109.14	7	15.59	4.62	<.01
IQ & Item	234.68	14	16.76	4.97	<.01
Sex & Item	80.96	7	11,57	3.43	<.01
IQ & Sex & Task	58.39	14	4.17	1.24	>.05
Indicidual & Item	2694.03	798	3.38		
Task	82.84	2	41.42	11.28	<.01
IQ & Task	58.24	4	14.56	3.96	<.01
Sex & Task	11,61	2	5.81	1.58	>.05
IQ & Sex & Task	3.73	4	0.93	0.25	>.05
Individual & Task	837.49	228	3.67		
Item & Task	29.90	14	2.14	1.23	>.05
IQ & Item & Task	51.40	28	1.84	1.06	>.05
Sex & Item & Task	15.18	14	1.08	0.62	>.05
IQ & Sex & Item & Task	46.76	28	1.67	0,96	>.05
Indiv. & Item & Task	2776.18	1596	1.74		
Total	9758.41	2879	3.39		

In the group of bright children, boys tended to rate themselves higher than girls except in acceptability to peers and adults. Generally in accord with Sears' (1940) findings, it is not surprising to find the boys more expansive and the girls more conservative. Sex differences were also found among the normal and retarded children's ratings, but in the opposite direction. The fact that the average IQ boys were the least well-adjusted of any group in the study may account for the boys' rating themselves generally lower than the girls. The largest discrepancy favoring the boys is in regard to arithmetic achievement, an ability generally found to favor males. Low IQ girls generally estimated themselves higher than boys, adding weight to the trend established. Combined ratings for boys were less than for girls except in terms related to arithmetic and playground or sports activities in which boys are expected to be more competent.

Differences in mean ratings due to intelligence were found. Low IQ girls generally rated themselves higher than high IQ and average IQ girls. This may reflect both the reliability of the measures and the highly acceptant climate in which the retarded children were placed in the schools. Average IQ girls rated themselves less highly than bright girls, evidencing a knowledge of the reality of their situations, since both groups came from the same classrooms. Evidence of an acceptant climate especially in the special classrooms is seen in examining mean item ratings for boys, where retarded boys rated themselves higher on items 4 and 5 than did either normal or bright children.

In examining means for total scales, bright children rated themselves highest, dull children next, and normal children lowest. Girls rated themselves higher than boys. Progressive tests showed increasingly high self ratings for each group and sex, probably indicating a feeling of increasing rapport with examiners and consequent greater self confidence.

Analysis of variance shows significant item, task, and IQ variation. Sex, as a source of variation, appears significantly in this analysis only when linked with items, as was expected.

Table 22 presents data comparable to Table 18 for the second year of the study, but it has been noted that certain changes were made in procedures and personnel. These changes, however, have not materially affected the results of the IQ distributions nor is there any reason to suspect gross differences in the sample.

TABLE 22. MEAN SELF CONCEPT RATINGS BASED ON TRANSORMED SCORES FOR A COMBINATION OF TWO TASKS, 1958-1959.

	1	2	3	4	5	6	7	8	Total Scale
High IQ									
Girls	5.18	5.28	5.83	5.07	5.38	4.88	5.08	5.53	126.75
Boys	5.70	5.67	5.80	4.98	5.07	5.88	5.93	6.55	136.75
Total	5.44	5.48	5.82	5.03	5.23	5.38	5.51	6.04	131.75
Ave. IQ									
Girls	4.03	4.58	4.78	4.43	4.62	4.63	4.68	4.17	107.80
Boys	4.13	3.90	3.60	4.17	4.20	4.93	4.43	4.07	100.30
Total	4.08	4.24	4.19	4.30	4.41	4.78	4.56	4.12	104.05
Low IQ									
Girls	5.65	5.85	6.05	6.20	6.58	5.97	5.33	5.63	141.80
Boys	5.22	4.68	4.75	5.02	4.82	4.90	4.70	5.20	117.85
Total	5.44	5.27	5.40	5.61	5.70	5.44	5.02	5.42	129.83
Total									
Girls	4.95	5.24	5.55	5.23	5.53	5.16	5.03	5.11	125.45
Boys	5.02	4.75	4.72	4.72	4.70	5.24	5.02	5.27	118.30
Grand Total	4.99	5.00	5.14	4.98	5.12	5.20	5.03	5.19	121.88
S.D.	1.84	1.98	2.09	1.99	2.06	1.91	1.95	1.95	30.1167
Variance	3.39	3.92	4.39	3.96	4.23	3.64	3.79	3.82	907.009

Again it is seen that bright boys and girls tended to rate themselves higher than average subjects and higher than low IQ girls. Highest ratings for bright children were, as might be expected, in the areas of academic achievement and intelligence, indicating that social acceptance and leadership were not considered a function of the bright children in the classroom alone. Low IQ subjects rated themselves highly, the girls by far exceeding the boys. This is a repetition of findings from the preceding year and has implications for the ways retarded boys view themselves in the special classrooms, girls apparently feeling more successful in all areas rated.

Of all groups, the average boys tended to rate themselves least highly, bearing out results of psychologists' ratings in which it was found that these subjects were the least well-adjusted of any group in the study. In only one area, playground and sports activities, did the average boys rate themselves higher than the girls.

With few exceptions, girls tended to rate themselves higher than boys. This again may have implications for the acceptance and conformity of the girls to the school classroom, as compared to boys. Further implications may evolve around the fact that one exception (a special classroom for retarded) the teacher were all women.

It may be considered that the findings of the first year of the study are substantially echoed in the second year's data. How far these findings may be generalized, is, of course somewhat problematical since the sample was not random, although it bore many of the aspects of randomness in lack of bias of selection.

Table 23 presents the analysis of variance of mean self concept ratings for 1958-1959. It is seen that differences are significant by IQ and that sex differences more nearly approach significance than in Table 21. However, item differences alone are not found to be significant in this data.

TABLE 23. ANALYSIS OF VARIANCE OF MEAN SELF CONCEPT RATINGS OF 120 FIFTH GRADE CHILDREN.

Source of Variation	Sum of Squares	df	Mean Square	F	p
IQ	797.414	2	398.707	13.238	$<.01$
Sex	63.903	1	63.903	2.122	$>.05$
IQ & Sex	240.202	2	120.101	3.988	$.01<p<.05$
Individual	3433.527	114	30.119		
Item	21.697	7	3.099	1.010	$>.05$
IQ & Item	147.435	14	10.531	3.434	$<.01$
Sex & Item	110.182	7	15.740	5.132	$<.01$
IQ & Sex & Item	37.203	14	2.657	.866	$>.05$
Individual & Item	2447.523	798	3.067		
Task	8.827	2	4.414	1.072	$>.05$
IQ & Task	17.358	4	4.340	1.054	$>.05$
Sex & Task	9.702	2	4.851	1.178	$>.05$
IQ, Sex & Task	25.033	4	6.258	1.520	$>.05$
Individual & Task	938.829	228	4.118		
Item & Task	28.690	14	2.049	1.104	$>.05$
IQ, Item & Task	56.525	28	2.019	1.088	$>.05$
IQ, Sex, Item & Task	18.237	14	1.303	.702	$>.05$
IQ, Sex, Item & Task	28.261	28	1.009	.344	$>.05$
Individual, Item & Task	2962.871	1596	1.856		
Total	11393.419	2879	3.957		

Discrepancy of the Self Concept Measure

To assess the reality of the self concept ratings of the subjects, certain external measures were used as criteria. To determine the actual success obtained in arithmetic, reading, and language, the elementary forms of the California Achievement Test (1957) were administered to all of the normal and bright children of the classrooms in which the subjects were located. Deciles were computed for the various classrooms. For the mentally retarded children, because of the need to modify directions for this test to avoid strong reading difficulty effects in the arithmetic and language sections of the test, and because of the need to administer these tests to groups of not more than five children at one time, deciles were computed only for the children tested using the primary form of the California Achievement Test. An added factor in making this determination was that of the age of the children, since mentally retarded children of age ranges greater than normally found in the ordinary classroom were found in the special classrooms for the educable. Therefore, bright and normal children compared with the total classroom groups, but mentally retarded are compared with the other retarded subjects in the study. A second criterion of reality is that of national norms for this test. These were compared with self concept ratings also, but not used in testing the hypothesis since almost without exception the retarded were at or below the first decile in terms of national norms, and were obviously entirely unrealistic. The frame of recurrence of the subjects in the study is presume to that of the classroom, rather than of the population at large, and during the second year of the study this was made even more specifically clear to subjects.

To assess reality of peer acceptance, a sociometric device was used in each classroom. All of the children in the classrooms from which each subject was obtained were asked to encircle the names of their "very good friends" which appeared on a dittoed classroom list. Names of the children were read orally to each group of children, and proctoring helped insure that each child understood his task.

Teacher ratings of adult acceptance, peer leadership, and playground or sports success were obtained and specific classroom deciles were computed. Scores were treated to eliminate the factor of differing N's between the sexes in each classroom, and deciles were computed.

WISC scores were translated into deciles by using the mentally retarded children's scores as one entity, and by combining the normal and bright subjects' scores into a single distribution.

Reliabilities for the Primary form of the California Achievement Tests are given as .93 for Total Reading; .93 for Total Arithmetic; and .87 for Total Language. For the Elementary (grade 4) form, the corresponding reliabilities are .93, .84, and .90. Reliability of the WISC is stated as .95. Teacher ratings were found to have total scale reliability by test and retest of .70. Sociometric data realiability cannot be determined, since changes in scores may represent actual changes in attitude, rather than lack of reliability.

During the second year of the study new norms were computed for the various reality measures employed since subjects were in many cases in different schools as well as in different classrooms, were a year older, and fifteen subjects were new to the study. Other procedures remained the same.

Following a determination of deciles for reality measures, the various task self concept ratings of each subject were averaged for each year and distributed into deciles. Each average decile score was then compared with reality measures, and differences computed.

Table 24 shows means decile discrepancies between self concept ratings and reality criteria for 1957-1958. Positive discrepancies indicate that the self concept rating was in a higher decile than the related reality measure, or that the subjects had overestimated their success. Negative discrepancy is similarily conceived, whereas total discrepancy represents the absolute differences without regard to signs.

It is evident that in each case the groups tended to overrate, rather than underrate their success. Evidently the feelings in these classrooms is supportive. It appears that children in this study are not highly realistic, and apparently achievement does not live up to Ss self beliefs. This has some implications for instruction and the testing of reality in the classroom, although, of course, it is desirable that children fell comfortable about themselves. The social factor of at least stating one's belief in his success may enter here to some extent, and the examination of psychologists' ratings may throw some light on this possibility.

It is seen that the high IQ group, as might be predicted, is closer to reality than the average IQ group. While it might be agreed that, in view of the general trend to overrate oneself, the bright children as high achievers could not have the room on the scale to be highly positively discrepant, this holds only for items 1, 2, 3, and 8. Examination of the other scale items does not show this trend, and it is evident that bright children are more likely than average or retarded to underestimate their success.

Average students were more discrepant than the retarded, and boys were found to be more likely to overestimate than girls. The latter statement tends to agree with Sears' finding (1940), but the former cannot be explained at this time. It is true that the average boys were found to be least well adjusted of any group in this study, but it is seen that the average girls, also, were the most highly discrepant of any group.

TABLE 24. MEAN DECILE DISCREPANCIES BETWEEN SELF CONCEPT RATINGS AND OBJECTIVE MEASURES OF REALITY FOR 120 RETARDED, NORMAL, AND BRIGHT CHILDREN, 1957-1958.

Low IQ Group

					Scale Item				
Boys	1	N1	2	N_2	3	N_3	4	N_4	5
Pos. Discr.	3.60	15	5.36	14	3.69	16	3.93	14	2.88
Neg. Discr.	1.50	4	2.25	4	1.33	3	2.00	3	2.00
Total Discr.	3.00	20	4.20	20	3.15	20	3.05	20	1.75

					Scale Item				
Boys	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	8	3.50	8	2.77	13	3.78	9	3.75	97
Neg. Discr.	6	1.50	8	3.00	4	2.25	8	1.98	40
Total Discr.	20	2.00	20	2.40	20	2.60	20	2.77	160

					Scale Item				
Girls	1	N_1	2	N_2	3	N_3	4	N_4	5
Pos. Discr.	3.80	15	4.14	14	4.12	16	2.88	17	1.80
Neg. Discr.	1.50	4	1.50	2	2.50	2	2.00	1	2.38
Total Discr. (Incl. Zero, Sign Ignored)	3.15	20	3.05	20	3.55	20	2.55	20	1.40

					Scale Item				
Girls	N_5	6	N_6	7	N_7	8	N_8	Total	Nt
Pos. Discr.	5	2.33	9	3.00	11	3.65	17	3.41	104
Neg. Discr.	8	2.50	6	2.33	6	3.00	1	2.23	30
Total Discr.	20	1.80	20	2.35	20	3.25	20	2.64	160

Average IQ Group

Boys	1	N_1	2	N_2	3	N_3	4	N_4	5
Pos. Discr.	4.06	18	4.15	20	3.95	19	3.36	11	2.33
Neg. Discr.	0.00	0	0.00	0	2.00	1	1.50	4	1.44
Total Discr. (Incl. Zero, Sign Ignored)	3.65	20	4.15	20	3.85	20	2.15	20	1.35

Boys	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	6	1.89	9	3.33	6	4.85	20	3.82	109
Neg. Discr.	9	1.80	5	2.80	5	0.00	0	1.85	24
Total Discr.	20	1.30	20	1.70	20	4.85	20	2.88	160

Girls	1	N_1	2	N_2	3	N_3	4	N_4	5
Pos. Discr.	4.13	15	3.61	18	4.31	16	4.42	12	2.00
Neg. Discr.	1.00	3	1.00	1	1.50	2	2.00	3	3.00
Total Discr. (Incl. Zero, Sign Ignored)	3.25	20	3.30	20	3.60	20	2.95	20	2.20

Girls	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	10	2.25	12	2.22	9	4.70	20	3.66	112
Neg. Discr.	8	2.33	6	2.00	6	0.00	0	2.17	29
Total Discr.	20	2.05	20	1.60	20	4.70	20	2.96	160

High IQ Group

Boys	1	N_1	2	N_2	3	N_3	4	N_4	5
Pos. Discr.	2.00	13	2.25	12	2.38	13	3.11	9	1.75
Neg. Discr.	1.40	5	1.33	3	1.00	1	1.62	8	2.22
Total Discr. (Incl. Zero, Sign Ignored)	1.74	19	1.63	19	1.68	19	2.16	19	1.75

Boys	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	8	1.91	11	2.25	4	2.17	12	2.22	82
Neg. Discr.	9	2.33	3	2.08	12	1.33	3	1.84	44
Total Discr.	19	1.47	19	1.79	19	1.58	19	1.73	152

Girls	1	N_1	2	N2	3	N_3	4	N_4	5
Pos. Discr.	2.36	11	1.54	13	2.33	15	2.92	13	2.00
Neg. Discr.	1.00	4	2.00	4	1.00	2	2.00	5	2.17
Total Discr. (Incl. Zero, Sign Ignored)	1.50	20	1.40	20	1.85	20	2.40	20	1.80

Girls	N_5	6	N_6	7	N7	8	N_8	Total	N_t
Pos. Discr.	5	1.75	4	2.00	4	1.64	14	2.11	79
Neg. Discr.	12	2.08	12	2.62	13	1.50	6	2.03	58
Total Discr.	20	1.60	20	2.10	20	1.60	20	1.78	160

TABLE 25. MEAN DECILE DISCREPANCIES BETWEEN SELF CONCEPT RATINGS AND OBJECTIVE MEASURES OF REALITY FOR 120 RETARDED, NORMAL, AND BRIGHT CHILDREN, 1958-1959.

Low IQ Group

	Scale Item								
Boys	1	N_1	2	N_2	3	N_3	4	N_4	5
Pos. Discr.	2.62	13	3.17	14	3.19	16	2.62	15	2.52
Neg. Discr.	2.20	5	1.53	5	1.78	3	2.00	2	1.33
Total Discr. (Incl. Zero, Sign Ignored)	2.25	20	2.60	20	2.82	20	2.17	20	2.17

	Scale Item								
Boys	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	14	2.69	13	3.17	16	4.03	11	2.98	112
Neg. Discr.	6	1.40	5	1.67	4	2.74	9	1.91	39
Total Discr.	20	2.10	20	2.87	20	3.45	20	2.55	160

	Scale Item								
Girls	1	N_1	2	N_2	3	N_3	4	N_4	5
Pos. Discr.	3.48	18	3.60	14	3.09	15	3.80	17	2.90
Neg. Discr.	1.33	2	0.89	3	1.93	5	1.83	2	1.13
Total Discr. (Incl. Zero, Sign Ignored)	3.27	20	2.65	20	2.80	20	3.42	20	2.32

	Scale Item								
Girls	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	14	2.89	18	3.14	12	4.52	16	3.44	124
Neg. Discr.	5	2.00	2	1.29	7	0.67	4	1.33	30
Total Discr.	20	2.80	20	2.33	20	3.75	20	2.92	160

Average IQ Group

						Scale Item			
Boys	1	N_1	2	N_2	3	N_3	4	N_4	5
Pos. Discr.	2.40	14	2.90	16	2.33	14	3.81	9	2.10
Neg. Discr.	1.00	5	1.00	3	1.33	3	1.64	11	1.12
Total Discr. (Incl. Zero, Sign Ignored)	1.93	20	2.47	20	1.83	20	2.62	20	1.50

						Scale Item			
Boys	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	10	1.71	14	2.22	15	1.62	7	2.39	99
Neg. Discr.	8	1.13	5	1.33	4	1.47	12	1.33	51
Total Discr.	20	1.48	20	1.93	20	1.45	20	1.90	160

						Scale Item			
Girls	1	N_1	2	N_2	3	N_3	4	N_4	5
Pos. Discr.	2.69	12	2.15	11	1.92	17	3.49	15	1.20
Neg. Discr.	1.17	4	2.24	7	1.83	2	2.07	5	1.71
Total Discr. (Incl. Zero, Sign Ignored)	1.35	20	1.97	20	1.82	20	3.13	20	1.28

						Scale Item			
Girls	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	10	1.72	13	1.67	10	1.22	12	2.07	100
Neg. Discr.	8	0.87	5	0.81	7	1.44	6	1.52	44
Total Discr.	20	1.33	20	1.12	20	1.17	20	1.71	160

High IQ Group

Boys					(Scale Item)				
	1	N_1	2	N_2	3	N_2	4	N_4	5
Pos. Discr.	1.12	8	0.56	3	0.50	2	2.67	9	2.56
Neg. Discr.	1.15	11	2.21	13	1.49	13	1.83	9	2.10
Total Discr. (Incl. Zero, Sign Ignored)	1.08	20	1.52	20	1.02	20	2.03	20	2.13

Boys					(Scale Item)				
	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	6	2.78	15	1.80	10	0.00	0	2.09	53
Neg. Discr.	13	1.67	5	1.53	10	1.72	20	1.73	94
Total Discr.	20	2.50	20	1.67	20	1.72	20	1.71	160

Girls					(Scale Item)				
	1	N_1	2	N_2	3	N_2	4	N_4	5
Pos. Discr.	1.61	6	1.11	3	0.67	4	2.75	12	1.50
Neg. Discr.	1.70	10	1.96	17	1.69	13	3.25	4	2.36
Total Discr. (Incl. Zero, Sign Ignored)	1.33	20	1.83	20	1.23	20	2.30	20	1.90

Girls					(Scale Item)				
	N_5	6	N_6	7	N_7	8	N_8	Total	N_t
Pos. Discr.	[illegible]	1.76	11	2.42	4	0.00	0	1.87	48
Neg. Discr.	11	1.58	8	2.33	14	2.60	19	2.15	96
Total Discr.	20	1.60	20	2.12	20	2.47	20	1.85	160

In considering Table 25, presenting similar data for 1958-1959, it is seen that total discrepancies were again positive for each group (over-estimation) and were less for the average children than for the preceding year. During 1958-1959 subjects were asked to rate themselves on a 10-point, rather than a 5-point scale and the frame of reference was indicated to be the individual classroom. Examination of Tables 26 and 27 shows that average IQ subjects improved appreciably in estimation of reality, but that high IQ and low IQ subjects did not. This may be because average subjects are more mature than during the preceding year, that high IQ subjects were already as accurate as may be expected, and that low IQ subjects are not greatly able to estimate their achievements in relationship to reality. Such factors as maturation, practice, and changes in procedure may all enter the picture, but it seems indicative that only the average subjects made substantial improvement. It must be stressed, however, that comparisons of data for the two years of the study must be cautiously made because of the changes mentioned, and that data for each year are more valuable in comparing sex and IQ differences than comparing the results of the two years.

For the second year of the study, low IQ children were again more discrepant than either of the high or average groups. High and average IQ boys tended to estimate themselves higher than the girls, the reverse being true for low IQ subjects. Greatest discrepancies were on items of acceptance (4, 5) and leadership and playground ability (6, 7). Academic estimates and those of intelligence were more accurately made, showing evidence that testing, teacher comments, report cards, etc., were operating to improve reality-testing of the subjects.

Examination of individual rating scales provides information relative to areas of the self concept. It is seen that high IQ subjects tend to underestimate their intelligence, whereas low IQ subjects tend to overestimate. Children generally tended to overestimate peer and adult acceptance, especially the former.

TABLE 26. MEAN SELF-CONCEPT RATINGS, 1958-1959.

	Mean Rating		Mean Discrepancy	
	1958	1959	1958	1959
Low IQ Boys	70.4	71	27.7	25.5
Low IQ Girls	78.0	80	26.4	29.2
Ave. IQ Boys	67.8	63	28.8	19.0
Ave. IQ Girls	71.0	66	29.6	17.1
High IQ Boys	79.6	79	17.3	17.1
High IQ Girls	75.4	75	17.8	18.5

TABLE 27. FREQUENCIES OF OVER- AND UNDERESTIMATIONS ON SELF-CONCEPT SCALES, 1958-1959.

	1 Adults		2 Lang.		3 Read.		4 Peers		5 Adults	
	*O	U	O	U	O	U	O	U	O	U
Low Boys	13	5	14	5	16	3	15	2	14	6
Low Girls	18	2	14	3	15	5	17	2	14	5
All Low	31	7	28	8	31	8	32	4	28	11

	6 Sports		7 Leader		8 IQ		Total Scale	
	O	U	O	U	O	U	O	U
Low Boys	13	5	16	4	11	9	112	39
Low Girls	18	2	12	7	16	4	124	30
All Low	31	7	28	11	27	13	236	69

	1 Arith.		2 Lang.		3 Read.		4 Peers		5 Adults	
	O	U	O	U	O	U	O	U	O	U
Ave. Boys	14	5	16	3	14	3	9	11	10	8
Ave. Girls	12	4	11	7	17	2	15	5	10	8
All Ave.	26	9	27	10	31	5	24	16	20	16

	6 Sports		7 Leader		8 IQ		Total Scale	
*	O	U	O	U	O	U	O	U
Ave. Boys	14	5	15	4	7	12	99	51
Ave. Girls	13	5	10	7	12	6	100	44
All Ave.	27	10	25	11	19	18	199	95

	1 Arith.		2 Lang.		3 Read.		4 Peers		5 Adults	
*	O	U	O	U	O	U	O	U	O	U
High Boys	8	11	3	13	2	13	9	9	6	13
High Girls	6	10	3	17	4	13	12	4	8	11
All High	14	21	6	30	6	26	21	13	14	24

* O Frequency of Overestimations
U Frequency of Underestimations

	6 Sports		7 Leader		8 IQ		Total Scale	
*	O	U	O	U	O	U	O	U
High Boys	15	5	10	10	0	20	53	94
High Girls	11	8	4	14	0	19	48	96
All High	26	13	14	24	0	39	1 01	190

	1 Arith.		2 Lang.		3 Read.		4 Peers		5 Adults	
	O	U	O	U	O	U	O	U	O	U
All Boys	35	21	33	21	32	19	33	22	30	27
All Girls	36	16	28	27	36	20	44	11	32	24
Total	71	37	61	48	68	39	77	33	62	51

	Sports		Leader		IQ		Total Scale			
	O	U	O	U	O	U	O	U	O	U
All Boys	42	15	41	18	18	41	264	184		
All Girls	42	15	26	28	28	29	272	170		
Total	84	30	67	46	46	70	536	354		

* O Frequency of Overestimations
U Frequency of Underestimations

TABLE 28. TESTS OF SIGNIFICANCE OF SELF-CONCEPT DISCREPANCIES, 1958-1959 DATA.

	N	Mean*	Diff.	S.E. diff	t	df	p
High IQ	40	3.40	.20	.3890	0.514	78	.60
Ave. IQ	40	3.20					
High IQ	40	3.40	1.50	.3833	3.913	78	.001
Low IQ	40	4.90					
Ave. IQ	40	3.20	1.70	.3669	4.633	78	.001
Low IQ	40	4.90					
Total Boys	60	3.78	.10	.3388	0.295	118	.70
Total Girls	60	3.88					

* Mean number of scales with percentile discrepancies of 20 or more.

	Alg[1]	Abs[2]	Scales[3]
Low IQ Boys	18	26	4.80
Low IQ Girls	24	29	5.00
All Low IQ	21	27	4.90
Ave. IQ Boys	11	19	3.35
Ave. IQ Girls	9	17	3.05
All Ave. IQ	10	18	3.20
High IQ Boys	-3	17	3.20
High IQ Girls	-7	18	3.60
All High IQ	-5	18	3.40
All Boys	8	21	3.78
All Girls	9	22	3.88
Grand Total	8	21	3.83

[1] Mean of the algebraic values of percentiles discrepancies (plus Ss' overestimation)

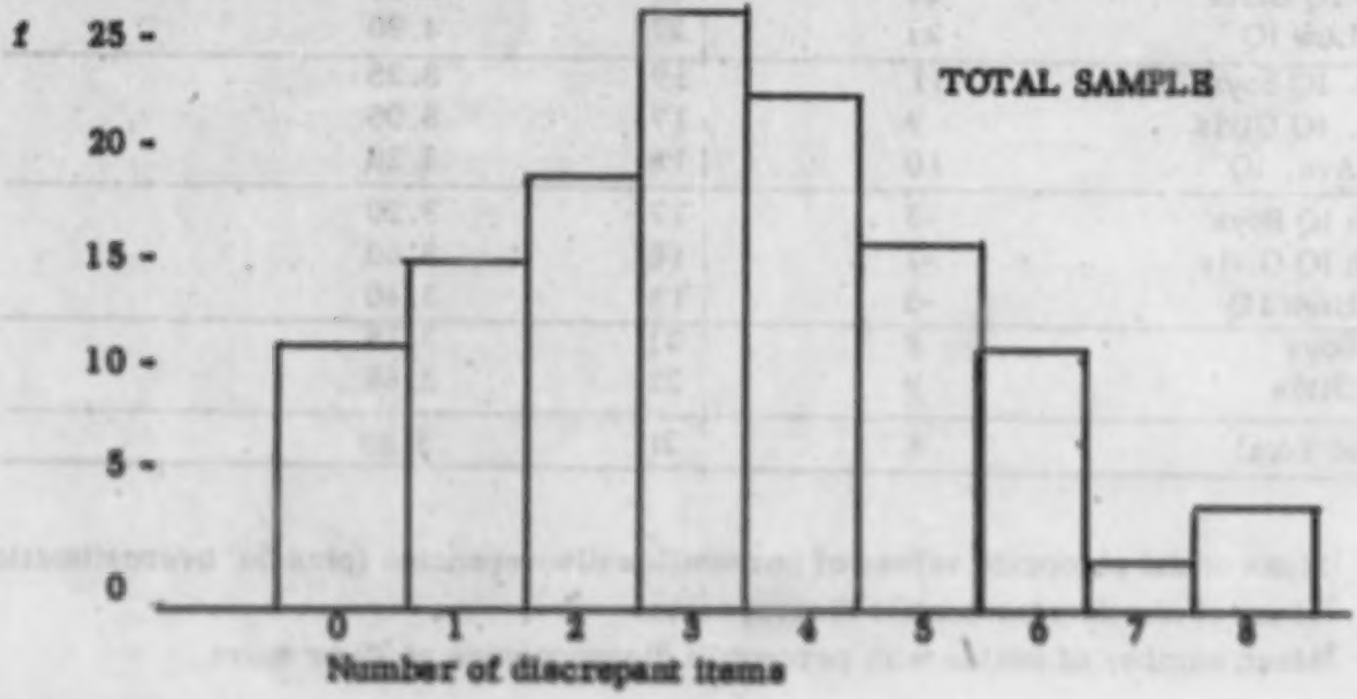
[2] Mean of absolute percentile discrepancies

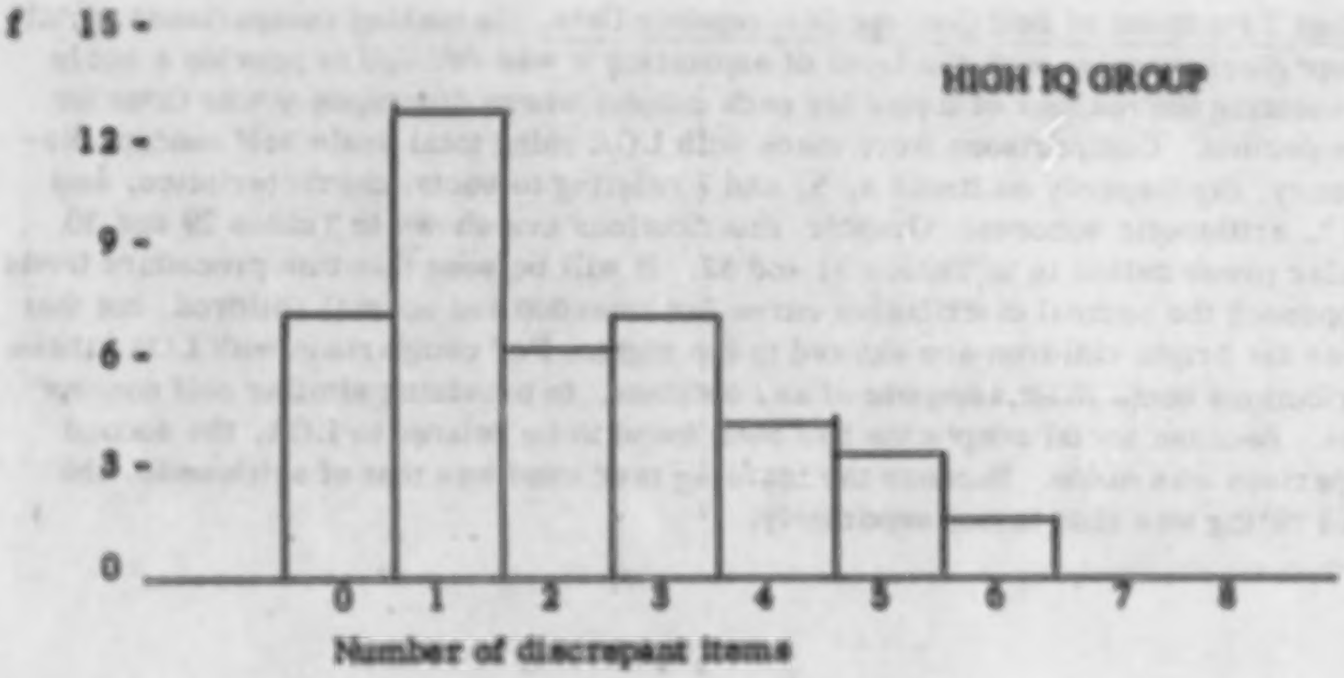
[3] Mean number of scales with percentile discrepancies of 20 or more

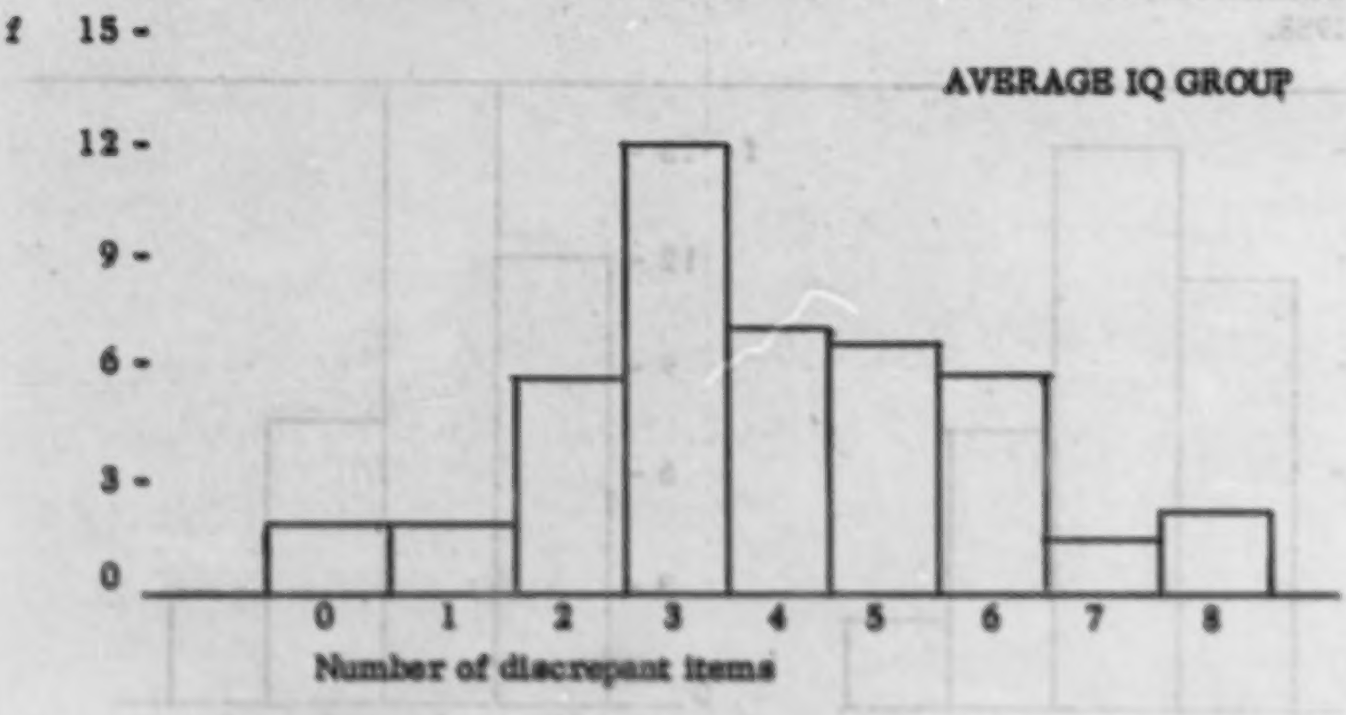
Table 28 presents further data showing the trends described above. The ultimate conclusion is that average subjects have improved in self estimates and now compare favorably with the bright subjects, but that low IQ subjects are still highly unrealistic. The over-all pattern shows little in the way of sex differences, although this is not true for sex differences by IQ groups.

Further Treatment of Self Concept Discrepancy Data. In making comparisons of self concept discrepancies with the level of aspiration it was decided to provide a score representing the number of items for each subject where discrepancy was three or more deciles. Comparisons were made with LOA using total scale self concept discrepancy, discrepancy on items 4, 5, and 7 relating to social characteristics, and item 1, arithmetic success. Graphic distributions are shown in Tables 29 and 30. Tabular presentation is in Tables 31 and 32. It will be seen that this procedure tends to approach the normal distribution curve for retarded and normal children, but that curves for bright children are skewed to the right. For comparison with LOA, these distributions seem most adequate of any obtained, in providing similar self concept bases. Because social adaptation has been found to be related to LOA, the second comparison was made. Because the learning task used was that of arithmetic, the item 1 rating was also tested separately.

TABLE 29. DISTRIBUTIONS OF SELF CONCEPT DISCREPANCY SCORES IN NUMBER OF DISCREPANT ITEMS FOR TOTAL, HIGH, AVERAGE, AND RETARDED CHILDREN, 1957-1958.






f
15
12
9
6
3
0
AVERAGE IQ GROUP
0
1
2
3
4
5
6
7
8
Number of discrepant items

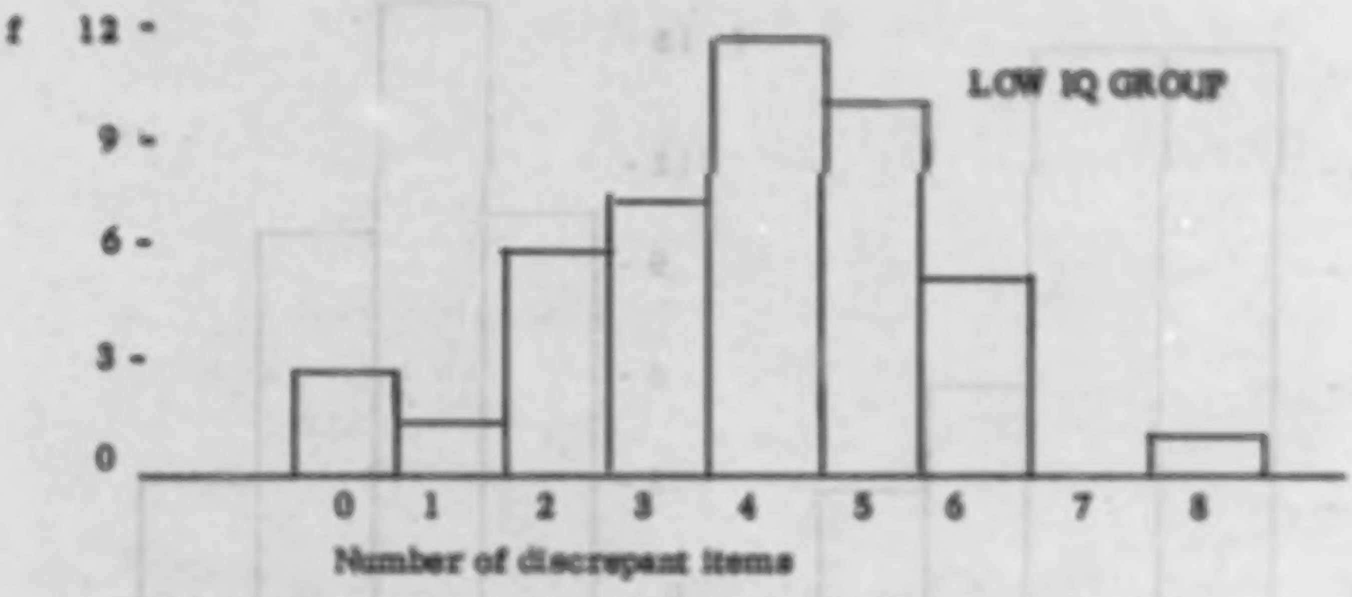
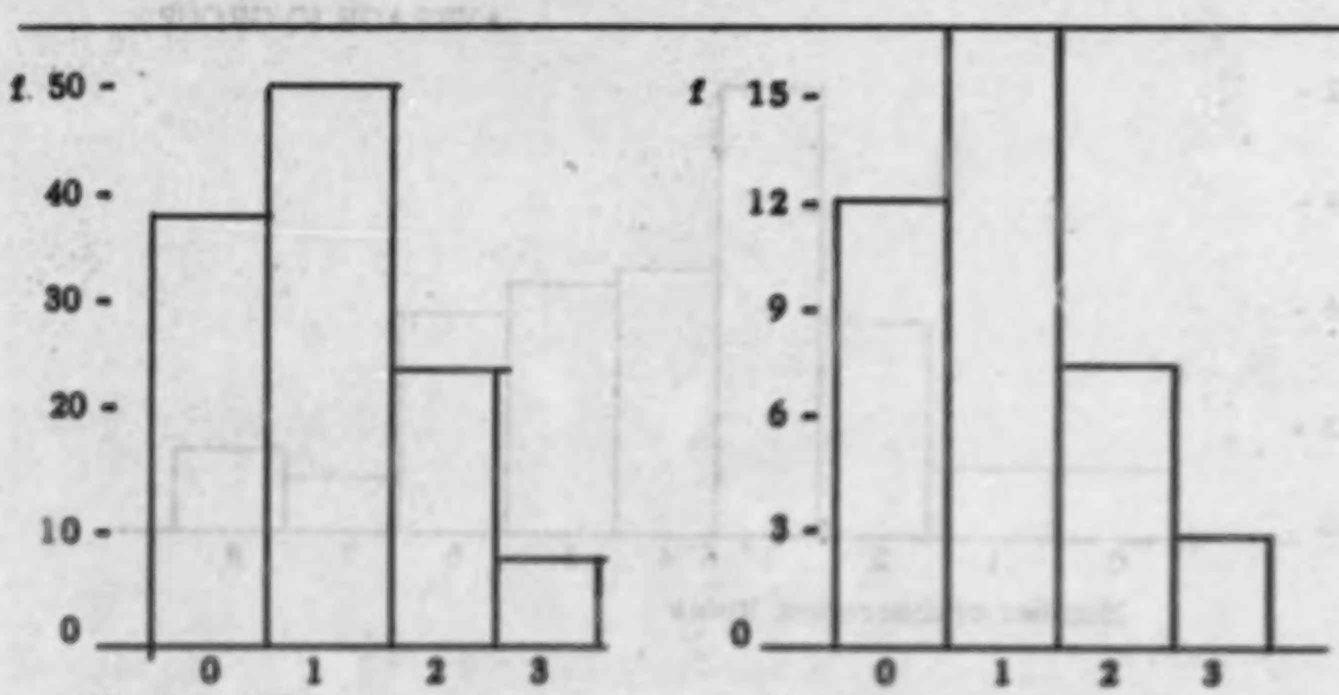
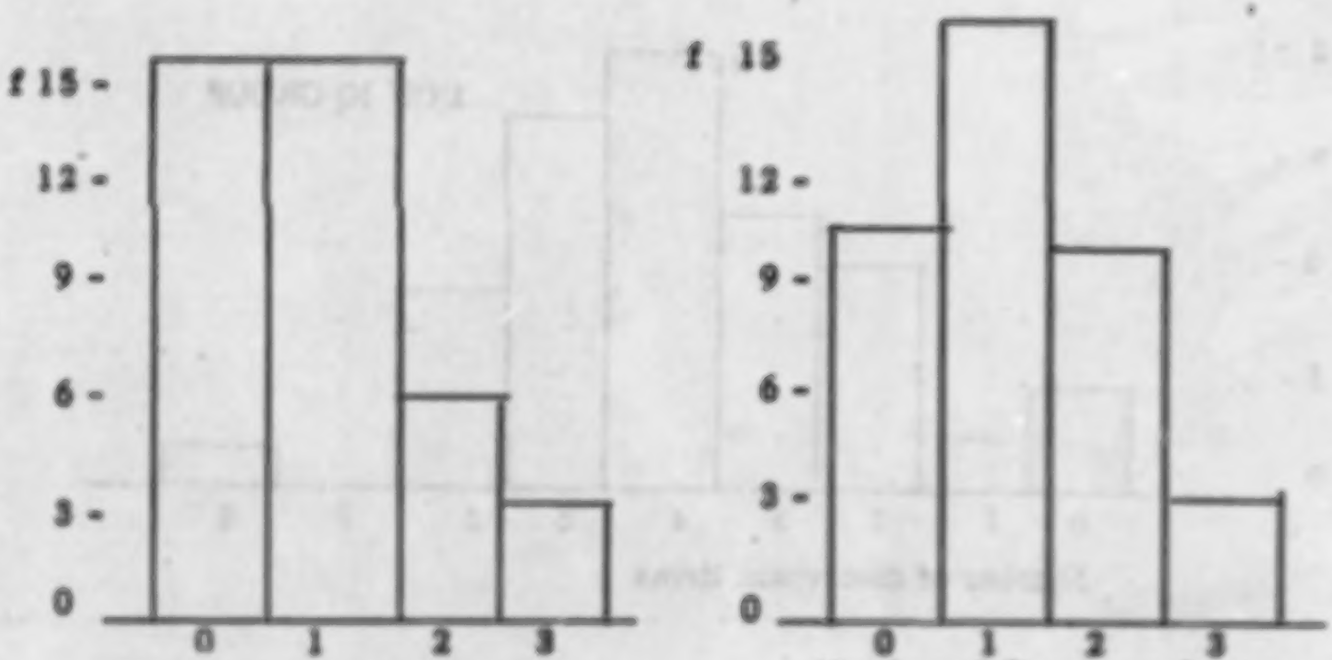

f
12
9
6
3
0
LOW IQ GROUP
0
1
2
3
4
5
6
7
8
Number of discrepant items

TABLE 30. DISTRIBUTION OF SELF CONCEPT DISCREPANCY SCORES ON ITEMS FOR SOCIAL ADJUSTMENT, TOTAL, HIGH, AVERAGE, AND LOW IQ GROUPS, 1957-1958.



Number of Discrepant items
TOTAL

Number of discrepant items
HIGH IQ GROUP



Number of discrepant items
AVERAGE IQ GROUP

Number of discrepant items
LOW IQ GROUP

TABLE 21. FREQUENCY OF TOTAL SCALE SELF CONCEPT DISCREPANCIES OF 120 RETARDED, NORMAL, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, 1957-1958.

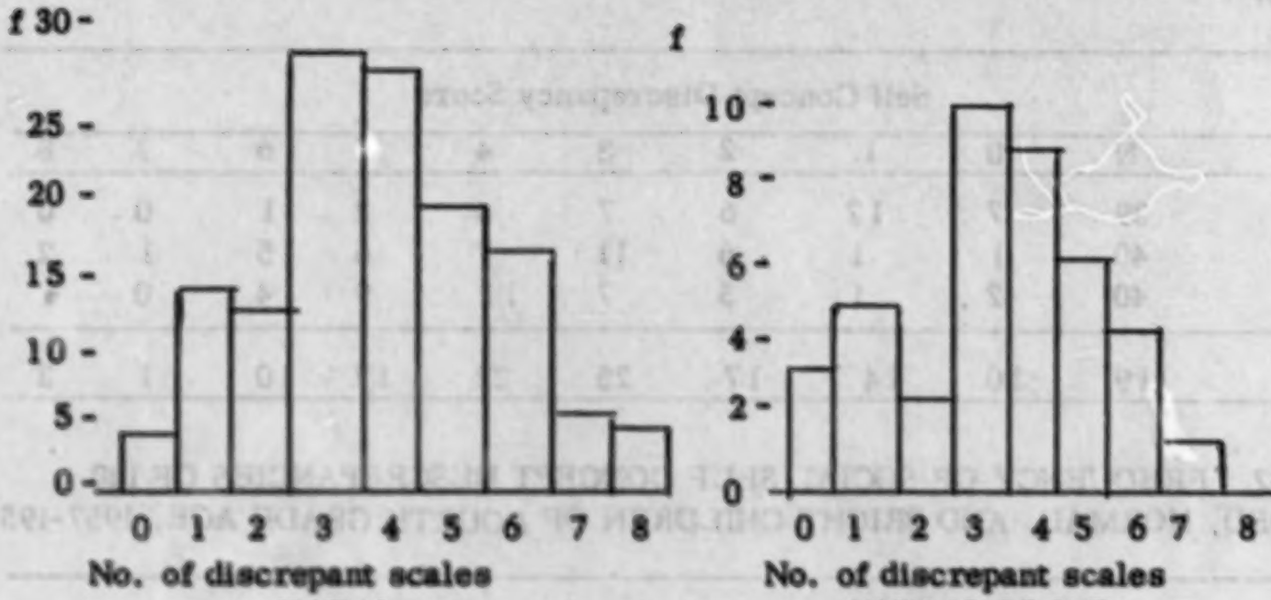
		Self Concept Discrepancy Score								
	N	0	1	2	3	4	5	6	7	8
High IQ	39	7	12	6	7	4	2	1	0	0
Ave. IQ	40	1	1	6	11	7	6	5	1	2
Low IQ	40	2	1	5	7	11	9	4	0	1
Total	119	10	14	17	25	22	17	10	1	3

TABEL 22. FREQUENCY OF SOCIAL SELF CONCEPT DISCREPANCIES OF 120 RETARDED, NORMAL, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, 1957-1958.

		Self Concept Discrepancy Score				
High IQ	N	0	1	2	3	Mean
High IQ	39	12	18	7	2	0.97
Ave. IQ	40	15	15	7	3	0.95
Low IQ	40	11	16	10	3	1.12
Total	119	38	49	24	8	1. 02

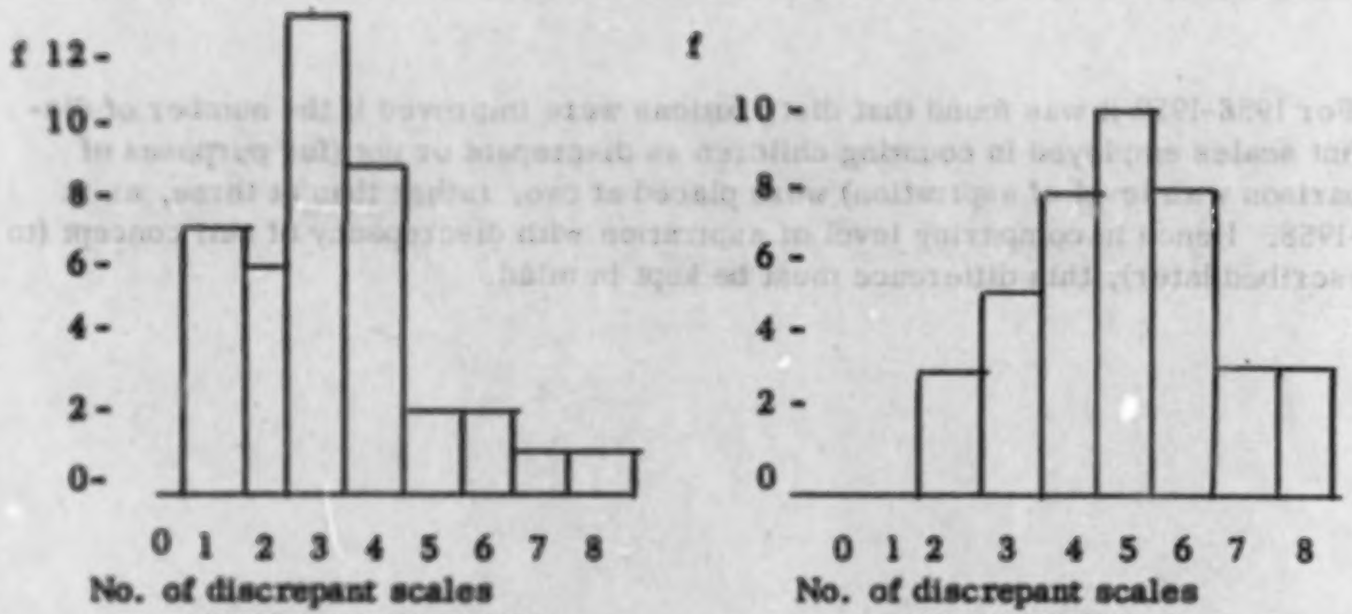
For 1958-1959 it was found that distributions were improved if the number of discrepant scales employed in counting children as discrepant or not (for purposes of comparison with level of aspiration) were placed at two, rather than at three, as in 1957-1958. Hence in comparing level of aspiration with discrepancy of self concept (to be described later), this difference must be kept in mind.

TABLE 33. DISTRIBUTIONS OF SELF-CONCEPT DISCREPANCIES, 1958-1959.



TOTAL

HIGH IQ GROUP



AVERAGE IQ GROUP

LOW IQ GROUP

Number of Discrepant Scales	High	Ave.	Low	Total
0-1-2	10	13	3	26
3-4	19	21	13	53
5-6	10	4	18	32
7-8	1	2	6	9
0-1-2	10	13		23
3-4	19	21		40
5-6-7-8	11	6		17

Number of Discrepant Scales	Low IQ
0-4	16
5-8	24

Psychologists' Estimates of Self Concept.

Psychologists obtained estimates of the subjects' beliefs about themselves during the clinical testing and interview session in which personality was assessed. Rating scales (see Appendix B) were similar to those used by examiners during arithmetic learning sessions. However, psychologists not only asked subjects how they felt about themselves but attempted to ascertain whether such verbal reports represented the true feelings of the subject or merely verbalization which might have social implications for him. That is, the subject might in actuality feel inferior in certain areas, but in order to obtain the social value of appearing confident, respond with a higher rating on the self concept scale than his beliefs warranted. Conversely, modesty might prevent the subject from verbalizing as high a rating of self belief as was actually held. From the interview, projective devices, and other knowledge of the subject, the psychologist then rated the self concept scale according to his best estimate of the true beliefs of the subjects. Under the assumption that psychologists could obtain information from clues which were not available to the teacher-examiners, psychologists should be closer to the actual beliefs of the subjects. Table 34 shows both the sum of absolute discrepancies for the total self concept rating scale in terms of deciles, the possible score being 80; and the number of discrepant items of three-deciles deiscrepancy or more, the possible score being 8. Since a different type of psychologists' rating scale was employed during the second year of the study (see Appendix B), comparative data for the second year of the study cannot be given.

Previous discussion has shown the reliabilities of high IQ subjects' ratings to be .947 for girls and .885 for boys. Average subjects' reliabilities were .887 for girls and .599 for boys. Reliabilities for low IQ subjects were .573 for girls and .221 for boys. Factor analysis showed that bright children had better-differentiated self concepts than average children, and they, than retarded subjects. In view of these findings, Table 34 is suggestive.

TABLE 34. TOTAL ABSOLUTE DISCREPANCIES OF SELF CONCEPTS AND NUMBER OF DISCREPANT ITEMS FOR RETARDED, AVERAGE, AND BRIGHT CHILDREN, 1958-1959.

Sum of Abs. Discrepancies in Deciles (8 Scales)		Number of Scales Discrepant by 3 Deciles	
High IQ Boys	Mean		Mean
Examiner	14.05		2.00
Psychologist	21.63		3.74
Difference	7.58	Difference	1.74
t 3.19		t 2.39	
$p < .01$		$p < .05$	
r (exam-psych)	-.048	r (exam-psych)	-.192
High IQ Girls			
Examiner	14.00		1.95
Psychologist	16.75		2.95
Difference	2.75	Difference	1.00
t 1.60		t 1.81	
$p > .10$		$p > .05$	
Average IQ Boys			
Examiner	23.00		3.85
Psychologist	18.95		3.45
Difference	4.05	Difference	0.40
t 2.27		t 0.89	
$p < .05$		$p > .30$	
Average IQ Girls			
Examiner	23.65		4.00
Psychologist	17.25		2.80
Difference	6.40	Difference	1.20
t 2.48		t 2.11	
$p < .02$		$p < .05$	
r (exam-psych)	.299		
Low IQ Boys			
Examiner	21.90		3.75
Psychologist	21.70		3.85
Difference	0.20	Difference	0.10
r (psych-exam)	-.212		

	Sum of Abs. Discrepancies in Deciles (8 Scales)		Number of Scales Discrepant by 3 Deciles
Low IQ Girls			
Examiner	21.25		3.90
Psychologist	20.30		3.75
Difference	0.95	Difference	0.15
Total Means for all groups:	Examiners	19.69	
	Psychologists	19.41	
	Difference	0.28	
Total r (examiner-psychologist)	.041		

It is seen that for high IQ boys examiners' findings of self estimates were closer to reality measures than those of psychologists, the differences being significant at the 1% level. The direction of difference is the same for high IQ girls, but not statistically significant. However, for average IQ subjects, examiners' findings were more discrepant from reality than those of the psychologists, the differences being significant at the 5% and 2% levels. No statistically significant differences were found for ratings of retarded children. Correlations between psychologists' ratings and those obtained by examiners were tested in some instances and found to be not significant. Correlations for the entire group of subjects were .041, and for sub-groups did not exceed .299. For this reason, attempts at further correlations were abandoned.

Because reliabilities, differentiation of self concept, and approach to reality were considered excellent for high IQ children, and less useful for average and retarded children, it may be inferred that at least for high IQ children, examiners, working over a longer period and through several administrations of self concept rating scales, were more accurate in assessing self beliefs than were the psychologists, working from clinical information in one situation. Some problems arise in making such a generalization due to the fact that in this study the average children, particularly the boys, have shown unexpected tendencies in self estimates and in measures of adjustment. However, weight is added to the belief of some that information such as may be obtained by teachers, using relatively uncomplicated instruments in a school setting, may provide clues to the personality of the child not as readily obtained in a clinical setting. Matters of rapport, stereotypes as to the nature of psychologist's work, time sampling, and others may be assumed to enter the picture.

The following conclusions regarding the self concept may be drawn for the children in this study, based on two years' data:

a. Mentally retarded children have less well-differentiated self concepts than average or bright children.

b. Mentally retarded children more generally tend to over-estimate success than average or bright children.

c. Bright children tend to rate themselves most highly, retarded and average children following in that order.

d. Mentally retarded children have less realistic self concepts that bright or average children.

e. The self estimate varies not only with the child, but with intelligence, sex, and situation.

f. Psychologists' ratings of self estimate do not correlate highly with those obtained by examiners. In the case of bright children, psychologists' ratings are more discrepant from reality, whereas for average children, psychologists' ratings are closer to reality. For retarded children no significant difference can be found between examiners' and psychologists' ratings.

g. Self concept ratings of mentally retarded children are less reliable than those of average or bight children.

The findings suggest that the classroom atmosphere in which mentally retarded subjects are working is acceptant and encouraging. However, results of self concept ratings must be cautiously assayed, as will be seen when the Taylor Manifest Anxiety Scale is treated. The retarded children seem genrally over - rather than under-confident, but this may be in part compensation for feelings of inferiority. Enos (1958) has shown that the mentally retarded boys in this study are better adjusted than the average boys. All indications from measures employed, however, confirm the belief that these retarded children are reasonably happy, acceptant of self and others, and motivated. On the other hand, they have less well-formulated self concepts, are less reliable in test results, and less accurate in self concept and level of aspiration in comparison with reality. Whether it is desirable to make attempts to place these children in closer relationship to reality of accomplishment is beyond the scope of this study. The mentally retarded, lacking good knowledge of success as defined by children of their own ability, are even further from reality when the total school population is considered. It may be that serious problems of working up to capacity, educational and vocational placement, and out-of-school relationships can result, suggesting further study of these children.

Bright children, as expected, have better-formed self concepts, differentiate better, are better adjusted, and are in closer contact with reality than average or retarded children. However, average children are sometimes below the retarded in self estimates and levels of aspiration. Since the bright and average subjects were in the same classrooms, and since the average boys were least well-adjusted of any group, these differences are probably not illogical.

Psychologists' ratings of self estimate of children do not correlate highly with those of teacher-examiners. The latter were obtained over approximately a three-month period, in three sessions in 1957-1958, as compared to one clinical situation structured by the psychologists. In the case of high IQ children, examiners were closer to reality, and it is inferred that they were closer to the true self belief of the subjects. It is thus implied that data collected by workers such as teachers, in the school setting, and with relatively uncomplicated instruments, may still provide highly valuable information in studying the personality of the child. It may be that teachers should be given diagnostic training in the areas of the self concept, mental health, and the like. It seems clear that communication between the teacher and psychologist should not be one of a purely consultative kind, but more nearly one of a sharing of information and hypotheses regarding the behaviors of children. The teacher and psychologist as a team may be expected to have better results in working with the child than where the teacher expects extensive direction from the psychologist and relies too heavily on clinical evaluation alone.

Section III

The Level of Aspiration

The level of aspiration (LOA) may be defined as the goal a subject states he will attain in the performance of some specified task. In many studies the LOA is ascertained and compared with actual performance, a discrepancy score being obtained to suggest the realistic quality of the LOA.

As Gates (1950), Cohen (1951), and others have stated, the LOA may serve as an incentive, a goal or desire to improve performance. If the subject sets his goal too high for attainment in terms of his real ability, he may still persist in endeavoring to reach the goal in spite of continued failure. This may be because he feels that to aspire to high achievement is socially praiseworthy, and he maintains his self-esteem by being ambitious. Conversely, some persons may interpret failure as a threat, and hence lower their LOA to avoid failure and deflation of their sense of personal worth.

Sex differences have been found in LOA (Johnson, 1949), (Marzolf, 1951), men showing higher discrepancies from reality, with expansiveness and daring. Women appeared to undervaluate themselves and appear more restrained, being more reliably oriented in their aspirations.

Sears (1940) found that "success" and "failure" were related to LOA in that an arbitrary initial "success group" (defined by the experimenter) showed low positive discrepancy as compared to the high positive discrepancy of a "failure group." On the other hand, a mixed "success and failure group" showed negative discrepancy. Sears also found that personality was related to LOA in that the low positive-discrepancy group (mostly success subjects) was self-confident, had more self-than social-motivation, few behavior problems and "unfavorable" personality traits. The high positive discrepancy group (mostly unsuccessful subjects) were less self-confident showed more self-motivation than socially-responsive motivation, and large discrepancies between achieved and wished-for skills. The negative discrepancy group (all degrees of success) were more socially responsive than self-initiated, and had low discrepancy between achieved and desired performance abilities. Sears also described the low positive-success group as strongly involved in the school work, requiring success in it for gratification of self-esteem, and seeming to find success rather readily. The high positive-discrepancy group also were described as having strong ego-involvement in their school work and requiring success for gratification of self-esteem, but admitting incompetence in achieving success, to having low self-confidence, and were considered not well-adjusted socially, tense, and worried. Sears hypothesizes:

> that self-confident, secure children are able to utilize a form of aspiration level response which is compatible with the pressures of the culture and at the same time personally comfortable (ego-gratifying) as long as their achievement improves at a fairly constant rate. This is the pattern of response seen in the low positive-discrepancy group which is called a "normal" or "adjustive" pattern of response. Children lacking in security and self-confidence are, however, forced to abandon this form of response in favor of one which will provide substitute gratification. (1940)

In the present study it is hypothesized that, because of factors related to their retardation, mentally retarded children possess unrealistic self concepts and unrealistic levels of aspiration. Mentally retarded children may be insecure and may often meet failure and have less intellectual ability with which to make adequate judgments about themselves. They may aim too low, as a result of failure, or too high, in spite of failure. Sex differences between levels of aspiration of boys and girls may be expected.

Measure of Level of Aspiration

LOA measures were obtained at each of the five arithmetic learning tasks for each subject. The tasks and measures of LOA are described below:

a. The counting task. Survey was made to determine where the child could count ten numbers proficiently, and teaching began at the next higher level of difficulty. Counting could be by 1's for mentally retarded subjects, and counting by 23's for the brightest children. Teaching time was nineteen minutes, during which the child was expected to learn ten new numbers of a counting sequence. If the child accomplished this task before the time was entirely used, he was given overlearning activities for the balance. He was then given an acquisition test, a five-minute rest period, a retention test, and LOA and self concept measures.

For this task the examiner stated, "We spent nineteen minutes today learning ten new numbers. If we do this again tomorrow, how many numbers do you think you would learn in nineteen minutes " The answer was recorded and a base of 10 was employed as a reality measure.

Although retention of numbers learned was tested at the next learning task session, no new numbers were taught, so that the basis for discrepancy scores of necessity remained at 10, the child's referrant.

b. The penny problem. In this problem-solving task the child was asked to divide a pile of pennies, quantity unknown to him, among a given number of friends. Time was recorded for completion of this task and all children were required to find a satisfactory solution to the problem. If, as in the case of some retarded subjects, the children were unable to solve the problem, help was given and a time increment provided for the total score.

For this task the examiner stated, "You learned how to solve a problem today in about ____________ minutes. If you did another problem like this tomorrow, how many minutes would it take?" (Time was supplied, and response recorded to the nearest whole minute.)

c. *The addition task.* The child was surveyed to find a maximum level of achievement, and teaching undertaken at the next higher level of difficulty. A total of 17 minutes teaching time was available, but if the child learned to solve the 10 problems in less, no overlearning was admitted. Acquisition, rest, and retention procedures were used as in other tasks.

For this task the examiner stated, "We spent ____________ minutes today learning 10 new addition exercises. If we do this again tomorrow, how long do you think it would take to learn 10 new exercises that would be just as hard to learn?" The subject was presented with a series of 5 numbers, two immediately above and two below the actual time in minutes used, and invited to indicate one of the numbers for his LOA. This procedure circumscribed the range of LOA in most cases to 5 minutes.

d. *The subtraction task.* The subject was surveyed to find a maximum level of achievement, and teaching was undertaken at the next higher level of difficulty. A total of not less than 10 nor more than 20 minutes was provided for learning, no overlearning being permitted.

In order to gain comparative data over a six weeks' period of time, LOA for the second year of the study was computed entirely on the basis of responses to subtraction task items. At the close of the learning the subject was told that he had learned 10 new subtraction problems. He was then presented with a scale showing the numbers from 1 to 20, the number 10 being encircled as the number of problems "learned today." He was then encouraged to encircle one of the numbers as representing the probable number he would get correct if the learning were repeated at a subsequent time. A second administration *of the same scale* was made at the time of teaching the next task, so that LOA in both instances was tied to the subtraction task.

e. *The second penny problem task.* The problem consisted of making a given amount of money with a specified number of coins, e.g. making 17¢ from 5 coins or 19¢ from 7 coins. The problem was clarified by testing the subject's knowledge of money, numbers, and other related arithmetic knowledges, and by illustrating a similar problem. Time was used as a measure of acquisition, and cues were provided so that all subjects finished in 15 minutes.

The design of this study was such that retention was sought under varying circumstances of learning. These differences may be summarized as follows:

a. The counting task varied from subject to subject but was unfamiliar to each and next in order of difficulty above achieve-level determined by survey. Learning time varied but was equalized for all subjects by use of overlearning devices. Retention measured the number of correct responses made.

b. The penny problem-solving task was the same for all subjects in essence, but varied slightly so that subjects returning to classrooms could not "give away" answers to the next subjects. Learning time varied and retention was measured in relearning time.

c. The addition task varied from subject to subject, depending upon results of the survey. Subjects learned varying amounts in a maximum of 17 minutes, possible score of items being 10. Retention tests measured number of items retained. No overlearning was provided.

d. The subtraction task was similar to the addition task except that time was held between 10 and 20 minutes. The possible score of items was 10, and items retained were used as the measure of retention.

e. The second penny problem-solving task permitted time to vary between 3 and 15 minutes, all subjects seeing the problem completed if not able to solve it themselves. Retention and transfer were both measured, one half the subjects, randomly selected, were given the smae problem to solve at the next sitting, whereas the other half of the subjects received a similar but different problem.

For more complete description of tasks and procedures, see Feldhusen (1958) and Check (1959) whose dissertations were primarily concerned with efficiency of learning under varying circumstances.

Level of Aspiration Discrepancies. Because no frame of reference could be provided in advance for amounts or times the subject might require in achieving a criterion of learning, LOA was tested after the fact and actual prior accomplishment was used as a measure of reality. Subsequent sittings employed only tests of retention, and no teachings of material similar to that learned in a given task was possible. This, in part, was due to time limitations imposed upon this study, in securing subjects.

TABLE 35. MEAN RAW SCORE DISCREPANCIES OF LEVEL OF ASPIRATION FOR 120 RETARDED, NORMAL, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, 1958-1959.

	High IQ			Ave. IQ			Low IQ			Total		
	Boys	Girls	T	Boys	Girls	T	Boys	Girls	T	Boys	Girls	T
LOA Task 1	3.00	1.90	2.44	2.40	2.05	2.22	4.16	2.10	3.10	3.17	2.02	2.58
LOA Task 2	0.58	0.58	0.58	0.65	0.50	0.58	1.30	1.05	1.18	0.85	0.71	0.78
LOA Task 3	1.08	0.70	0.88	0.08	1.00	0.54	0.60	1.00	0.80	0.58	0.90	0.74
N	.19	20	39	20	20	40	20	20	40	39	60	119

LOA Task 1: Discrepancy in "number of correct responses."
LOA Tasks 2 and 3: Discrepancy in number of minutes.

TABLE 36. DISTRIBUTION OF DISCREPANCY SCORES FOR LOA OF 120 RETARDED, NORMAL, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, 1958-1959.

	High IQ			Ave. IQ			Low IQ			Total		
Task	1	2	3	1	2	3	1	2	3	1	2	3
Accurate	23	32	28	20	32	26	14	26	22	57	90	76
Discrepant	16	7	11	20	8	14	26	14	18	62	29	43

Table 35 shows mean LOA discrepancies by learning task. All discrepancies are positive, in which LOA, as it happens, were higher than reality. The LOA discrepancy for Task 1 (counting) is in terms of number of correct responses aspired compared to number learned. Discrepancies for Tasks 2 and 3 (problem-solving, addition) are in terms of minutes aspired compared to minutes required. It is seen that for the first two tasks, boys aspire more highly than girls, the reverse being true for Task 3. Low IQ children have the greatest discrepancies of any group for the third task. Evidently these children are less able to test reality than others, and they may hope to attain social approval by high, though unrealistic, aspirations.

Table 36 shows the distribution of LOA scores resulting from arbitrary treatment of raw data. In developing this distribution, raw data were distributed along continua by IQ group, sex, and task. In the counting task those whose LOA was at, or one response higher than reality were considered as being accurate. Those more than one response higher in aspiration, or one or more responses lower were considered inaccurate, regardless of sign discrepancy. For tasks 2 and 3, a deviation of one or more minutes below reality, or more than one minute above reality was considered inaccurate. It is evident that low IQ children are more discrepant than others, using these criteria.

TABLE 37. DISTRIBUTION OF LEVEL OF ASPIRATION SCORES FOR SUBTRACTION TASK, 1958-1959.

	High IQ			Ave. IQ			Low IQ			Total Group		
LOA Score	Boys	Girls	T	Boys	Girls	T	Boys	Girls	T	Boys	Girls	T
20	2		2		1	1	1	3	4	3	4	7
19								1	1		1	1
18	2		2	1		1	1		1	4		4
17	1	2	3		2	2				1	4	5
16					2	2	1		1	1	2	3
15	1	3	4	1	3	4		2	2	2	8	10
14	1	1	2		1	1	1		1	2	2	4
13	4	1	5	2		2				6	1	7
12	1	2	3	1	2	3	2	2	4	4	6	10
11	1	2	3	2		2	4	1	5	7	3	10
10	6	8	14	9	7	16	6	9	15	21	24	45
9		1	1	2	1	3	3		3	5	2	7
8	1		1	1		1	1	1	2	3	1	4
7												
6					1	1					1	1
5				1		1				1		1
4												
3												
2												
1								1	1		1	1

Table 37 shows the distribution of scores for the first administration of the LOA measure of the subtraction task, 1958-1959. Subjects aspiring to 10, 11, or 12 problems were considered as accurate, since most children were found to aspire slightly higher than actual accomplishment in previous studies and treatment of data.

Table 38 shows means of LOA scores and discrepancies for subjects for both tasks 4 and 5. It will be seen that little variation exists between the two administrations for the high IQ subjects ($p \leq .001$ but that more variation between scores was found for average and low IQ subjects. However, the total of all subjects showed a significant correlation between administrations of $p \leq .001$), indicating over-all reliability of estimates.

TABLE 18. MEAN LEVEL OF ASPIRATION SCORES AND DISCREPANCIES FOR SUBTRACTION TASK, 1958-1959.

	Mean LOA Score		Mean LOA Discrepancy[1]		Frequency of Accurate[2] LOA Scores	Frequency of Inaccurate LOA Scores
	Task 4	Task 5	Task 4	Task 5		
High Boys	13.25	12.20	3.45	2.40	8	12
High Girls	12.05	11.10	2.15	1.80	12	8
Total High	12.65	11.65	2.80	2.10	20	20
Ave. Boys	10.70	11.85	1.60	2.45	12	8
Ave. Girls	12.70	11.65	3.20	1.65	9	11
Total Ave.	11.70	11.75	2.40	2.05	21	19
Low Boys	11.55	11.50	2.05	1.70	12	8
Low Girls	12.15	12.55	3.25	3.15	12	8
Total Low	11.85	12.02	2.65	2.42	24	16
Total Boys	11.83	11.85	2.37	2.18	32	28
Total Girls	12.30	11.77	2.87	2.20	33	27
Grand Total	12.07	11.81	2.62	2.19	65	55

[1] Discrepancy: *Absolute value of the difference between LOA score and 10*

[2] Accurate LOA: Scores of 10, 11, or 12

CORRELATIONS BETWEEN LOA SCORES ON TASKS 4 AND 5.

	N	r_{12}	p
High IQ	40	.571	$<.001$
Ave. IQ	40	.216	$>.05$
Low IQ	40	.241	$>.05$
Total	120	.320	$<.001$

Section IV

Test of First Hypothesis

The first hypothesis (a) states that "mentally retarded children possess unrealistic self concepts and subsequent unrealistic levels of aspiration in certain school learning situations as compared to normally developing children." This section of the report shows tests of these relationships.

Comparison of LOA Discrepancies with Self Concept Discrepancies, 1957-1958

Biserial correlations were computed to compare LOA discrepancies with total self-concept discrepancies, and with discrepancies on the three "social acceptance" self concept items (peers-adults-leadership). Levels of aspiration were dichotomized as "accurate" or "discrepant." Self concept scores were classified for each of the items of the rating scale as either "accurate" or discrepant," and discrepancy scores were determined by counting the number of discrepant items. Thus the range of discrepancy scores was from 0 to 8 for the total self concept, and from 0 to 3 for the social self concept. Direction of discrepancy for LOA and self concept was ignored.

To compare LOA discrepancies with discrepancies on the arithmetic ability item of the self concept inventory, tetrachoric correlations were computed. Criteria of accuracy were the same as those described above. In this case, however, self concept discrepancies formed an accurate-inaccurate dichotomy, rather than a continuous distribution.

Product-moment correlations between raw score discrepancies of self concept and LOA were also claculated. This has the advantage of providing for the range of discrepancies, as well as their incidence. However, certain widely discrepant LOA scores were obtained in the testing, indicating that such subjects were probably guessing, rather than estimating, hence subjecting these correlations to some doubt.

Table 39 shows product-moment correlations based on raw score discrepancies. Tests of significance show only one significant correlation, that of the average IQ boys on the counting task (r -.567). This may be expected by chance and it may therefore be concluded that no relationship was discerned between raw score discrepancies and LOA discrepancies based on data for this group.

TABLE 39. PRODUCT MOMENT CORRELATIONS BETWEEN RAW SCORE DISCREPANCIES FOR SELF CONCEPT AND LOA OF 120 RETARDED, NORMAL, AND BRIGHT CHILDREN, 1957-1958.

	High IQ			Average IQ			Low IQ		
	F	M	Total	F	M	Total	F	M	Total
Task 1	.001	.094	.063	-.046	-.567*	-.180	-.116	-.156	-.127
Task 2	.179	.036	.123	-.025	.104	.033	.064	.390	.193
Task 3	-.109	.215	.088	-.333	.018	-.155	.169	.250	.196

*Significant at 5% level.

Table 40 shows biserial correlations between total self concept discrepancies and LOA discrepancies. Again, only one correlation coefficient was statistically significant, that of the high IQ children on the problem task.

TABLE 40. BISERIAL CORRELATIONS OF SELF CONCEPT AND LEVEL OF ASPIRATION DISCREPANCIES FOR 120 RETARDED, NORMAL, AND BRIGHT FOURTH GRADE SUBJECTS, 1957-1958.

	Group	Counting	Problems	Addition
40	Low IQ	-.390	-.050	.240
40	Ave. IQ	-.180	.220	.070
39	High IQ	-.050	-.480*	-.400

*Significant at 5% level.

Table 41 shows biserial correlations for peers-adults-leadership self concept items with LOA in terms of discrepancies. None of these correlations are significant.

TABLE 41. BISERIAL CORRELATIONS BETWEEN LOA DISCREPANCY AND SELF CONCEPT DISCREPANCY ON PEERS-ADULTS-LEADERSHIP ITEMS FOR 120 RETARDED AVERAGE, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, 1957-1958.

N	Group	Counting	Problems	Addition
40	Low IQ	-.170	-.130	.260
40	Ave. IQ	-.200	.230	-.020
39	High IQ	-.040	-.220	-.340

Table 42 shows tetrachoric correlations between LOA and self concept discrepancies on the arithmetic item alone. The tetrachoric r is not entirely suitable for this sort of study, since zero values in the data contaminate correlations. However, due to the nature of the data, this correlation was computed rather than other correlations, for reasons previously mentioned. On the basis of this data and using this formula, it might be concluded that high IQ children who had accurate self estimates of arithmetic achievement were inaccurate in LOA. Actually, this is an artifact of the study, since it was found that bright children tended to believe that they could do better on arithmetic problems "the next time," but were actually compared with the reality of present performance. That is, it is conceivable that these subjects might actually live up to the levels of aspiration postulated, but this could not be checked in view of the experimental design.

TABLE 42. TETRACHORIC CORRELATIONS BETWEEN LOA AND SELF CONCEPT DISCREPANCIES ON ARITHMETIC ITEM FOR 120 CHILDREN OF FOURTH GRADE AGE, 1957-1958.

N	Group	Counting	Problems	Addition
40	Low IQ	-.53	-.37	.05
40	Ave. IQ	-.18	.10	-.15
39	High IQ	-.45	High neg.*	High neg.*

* Zero values made it impossible to determine r precisely.

Comparison of LOA Discrepancies with Self Concept Discrepancies, 1958-1959

Only one LOA rating was used in these tests, that of the administration with Task 4. It has previously been shown that a high degree of consistency was found between LOA's for Task 4 and repetition of the measure with Task 5.

Table 43 shows the Pearson product-moment correlations between self concept discrepancies and level of aspiration discrepancies for the second year of the study. In determining self concept discrepancy, the sum of the absolute values of percentile discrepancy, the sum of the absolute values of percentile discrepancies was employed, a procedure differing from the previous tests. LOA was considered in terms of the absolute difference between the ascertained LOA score and 10, the presumed reality measure.

TABLE 43. PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN SELF CONCEPT DISCREPANCIES AND LEVEL OF ASPIRATION DISCREPANCIES, 1958-1959 DATA.

	N	r
High IQ	40	-.240
Ave. IQ	40	-.341
Low IQ	40	.062
Total	120	-.107

Table 44 shows summary correlations found for the two years of the study, obtained by differing procedures.

TABLE 44. CORRELATIONS BETWEEN SELF CONCEPT DISCREPANCIES AND LEVEL OF ASPIRATION DISCREPANCIES FOR TWO YEARS' DATA.

	1958	1959
High IQ	.088	-.240
Ave. IQ	-.155	-.341
Low IQ	.196	.062

In view of these results it can only be concluded that the aspect of the hypothesis which suggests that unrealistic self concepts are accompanied by unrealistic levels of aspiration has not been shown to be true. Although retarded children as groups tend to be less realistic than average or bright children in both self concept and level of aspiration, the relationship is evidently more complex than that of simple correlation between the measures. Refinements in ways of treating and gathering data seem needed. We may conclude, at least in view of above results, that LOA may be, as others have found, more closely related to emotional adjustment of the child than to reality of self concept as tested in this study.

Section V

The Galvanic Skin Response

The work of Lacey (1956, 1958), Lacey and Lacey (1958a, b), Jones (1930, 1950), Haggard (1949), Martin (1956), and others shows the belief that personality patterns or traits are related to autonomic behavior and that at least some estimate of that (perhaps peripheral) behavior may be assessed through GSR techniques. Lacey and Siegel (1949) have pointed out difficulties in the use of such techniques, in that various GSR indices are possible and the choice and interpretation of results must be carefully weighed. In spite of such factors as sex, age, room temperature, health of subject, electrode pressure, base level before and during stimulation, and others, Jones (1930, 1950), Bramble (1942), and Darling (1940) find generally that the GSR does demonstrate differences among personality variables; for example, that persons who react overtly under stimulation may have low GSR reactivity, and vice versa. The hypothesis has been made that the GSR reflects energy mobilized by the subject under stimulation, but not used. This free energy may therefore be utilized covertly and reflected in the GSR, or overtly, with low GSR differentials.

Darrow and Heath (1932), Thiesen and Meister (1949), and Wechsler, Crabbe and Freeman (1930) relate other findings, some in contradiction to this hypothesis. Findings are difficult to assess, however, since data have been treated variously in terms of base level, conductance, resistance, log conductance, and in other ways.

The hypothesis of this study is that mentally retarded children become more emotionally disturbed than average children in a school learning situation. In view of the findings of others (above), the hypothesis rests upon two beliefs:

a. that mentally retarded children, being generally less successful in meeting environmental challenges, may face greater threat than normally developing children, so that comparable actual stimuli may represent stronger and/or more frequent stimuli to these children. This would result in greater GSR reactivity.

b. that mentally retarded children, because of less success in facing the environment, might tend to inhibit overt reactions with resulting greater GSR differentials.

Accordingly, both GSR data and observed activity were studied. Observations, as will be mentioned, proved fruitless for this investigation because of lack of reliability of the techniques used. GSR data proved more useful, as will be seen. Instrumentation. The GSR amplifier used was a Hunter Model 100 A (1) with a potentiometer of 50,000 ohms. A three volt direct current applied through wet palm and back of hand electrodes was used. Maximum sensitivity is given as one milliampere change per thousand ohms load per thousand ohms subject's resistance change, with a forty microampere current. Recording was made with an Esterline-Angus Model AW DC Milliammeter (2) at a speed of 1 1/2 inches per minute. Logarithmix charts (Technical Charts Incorporated No. E4305-XE (3)) were employed, calibration of the instruments being such that each minor chart division represented 500 ohms deflection.

Procedures. The subject was placed in circuit immediately upon his arrival at the examining room and so remained throughout the entire learning task. A three-minute relaxation interval was provided in order to ascertain initial base level which was treated as the zero-point for the recorder. The GSR operator made notes as to ongoing activites which were also indicated on the GSR chart.

Measures of GSR Reactivity. The square root of conductance ($\sqrt{C}$) has been considered useful in GSR work (Lacey and Siegel, 1949), although various measures have been studied. Because it has not been definitely established which of the various possible indices available might yield most useful data, in this study five sources of data were employed. A fifteen minute interval, beginning with the start of the survey task, was selected as the area of assessment. The following indices of GSR reactivity using $\sqrt{C}$ were employed:

a) M--the mean base level exhibited during a fifteen minute interval, calculated from readings at the end of each minute, and then averaged.

b) B--the slope of the base line, expressed as the regression of selected points on the GSR record, calculated from readings at the end of each minute. This provided and estimate of the general upward or downward trend of base level.

c) V--the variability from the base level, expressed as the variance of selected points on the GSR record from a straight line fitted to them by the least-squares method, calculated at one-minute intervals.

d) P--the combined height of all peaks of 500 ohms or more in the fifteen-minute interval.

e) N--the number of peaks of 500 ohms or more in the fifteen-minute interval.

Experimental treatment of early data confirmed the belief that the first fifteen minutes after beginning of teaching provided as adequate data as the entire graphic record, which in some cases ran as long as fifty minutes. Readings of charts were made by two researchers, reliability checks indicating a reliability coefficient of approximately .80. Notations on a running account or diary of activity during the teaching permitted extraneous data (due to calibration of the amplifier, adjustment of electrodes, and gross body movements) to be deleted.

Presentation of GSR Data

Frame of Reference of Interpretation

It is postulated that both an autonomic readiness to face a challenging or threatening situation, and a specific autonomic response to particular stimuli, are present and evidenced by the GSR response. An individual appears to present a general autonomic response which may represent a sort of mobilization of emotional resources and is reflected by the GSR base level. As he adapts to the situation, the base level response may change. In addition, the number of specific responses may vary and their strengths change as stimuli are presented and reacted to. The various indices described above are not entirely independent of each other. A limiting factor is presumed to be present in the specific autonomic responses, which is a function of the height of base level. When the base level is low, the individual appears to be more free to respond specifically, whereas, when the base level is high, specific responses are inhibited, somewhat in the nature of a homeostatic reaction. Although statistical treatment through the use of $\sqrt{C}$ is presumed to insure that a response of a certain number of microhms deviation from one base level represents the same response as from another another base level, one may not infer that such responses are equally facile at varying base levels. Thus, when the base level is low, larger deviations may be expected, and when the base level is high, smaller deviations may be expected. In interpreting Tables 45-49, the interaction between various indices should be kept in mind. This interpretive frame of reference seems in general accord with certain remarks of Lacey (1956).

Mean Data of Various GSR Indices, 1957-1958

Data were treated to analysis of variance, as will be shown. Not all of the differences presented in the following tables are statistically significant. However, consistency in trends may be indicative and provide clues which aid in interpretation and may suggest further study (Taylor, 1959).

Mean base level was determined by first obtaining the prestimulation level during a 3-minute period of relaxation. The initial reading at the start of teaching (stimulation), and at the end of each succeeding minute for 15 minutes was obtained and converted into $\sqrt{C}$ units. As will be seen, base levels for each group decreased with each succeeding task, and boys tended to have lower base levels than girls, although exceptions occurred. Since lower base level indicates decreased conductivity (or increase in resistance), and since this index is one measure of an autonomic response to emotionally toned situations, it may be inferred that not only were boys less emotionally aroused than girls in these situations, but that arousal for each group tended to decrease with each task, probably as adaptation as the children became more acquainted with apparatus, examiners, and procedures. It may not be inferred, however, that the only emotion being studied is that of fear or reaction to threat, as will be seen through examination of other GSR indices. What is actually being measured is a part of a general emotional reaction, and succeeding measures may throw further light on what is actually occurring during the learning tasks.

TABLE 45. MEAN GSR BASE LEVEL EXPRESSED IN $\sqrt{C}$ FOR 105 RETARDED, NORMAL, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, 1957-1958.

	N	Task 1	Task 2	Task 3	Total
High IQ Boys	17	8.09	7.66	7.50	7.75
High IQ Girls	19	9.46	8.36	7.78	8.53
Total	36	8.81	8.03	7.65	8.16
Ave. IQ Boys	17	8.42	7.16	8.19	7.92
Ave. IQ Girls	15	8.55	8.86	8.69	8.70
Total	32	8.48	7.95	8.42	8.29
Low IQ Boys	19	8.53	7.76	7.75	8.01
Low IQ Girls	18	8.75	8.19	7.46	8.13
Total	37	8.63	7.97	7.61	8.07
Total Boys	53	8.35	7.54	7.81	7.90
Total Girls	52	8.95	8.44	7.93	8.44
Grand Total	105	8.65	7.98	7.87	8.17

Table 46 shows the mean slope of the base level as determined by fitting a regression line to sixteen 1-minute interval points on the GSR chart. In effect this provides an index of the general trend of the base level within a task sitting, either generally upward or generally downward in trend. As is seen, the slopes, through a series of three tasks, are essentially slightly upward. Not only is an upward trend noticed within each task by groups (except for the first task low IQ boys), but slopes tend to increase with succeeding tasks. It now appears that while initial base level and mean base level may indicate a degree of preparedness of subject for the learning task, that his general reactivity increases during and with succeeding tasks. This leads us to infer that we are not measuring mere threat or fear, but that the subjects are becoming more emotionally involved in actually participating in the learning task, perhaps due to interest or challenge. That is, when comparing results shown in Table 46 with those of Table 45, it is apparent that initial and average base levels decrease with tasks, showing less emotional involvement and adaptation, but that during the task the subject becomes emotionally more active. These relationships may also be in part a function of the freedom of movement expected with lower general base levels.

TABLE 46. MEAN SLOPE OF GSR BASE LEVEL LINE DETERMINED FROM REGRESSION OF SELECTED POINTS ON CORRESPONDING TIME UNITS FOR 105 CHILDREN, 1957-1958.

	N	Task 1	Task 2	Task 3	Total
High IQ Boys	17	.0200	.0261	.0415	.0292
High IQ Girls	19	.0416	.0473	.0514	.0468
Total	36	.0314	.0373	.0467	.0385
Ave. IQ Boys	17	.0165	.0488	.0348	.0334
Ave. IQ Girls	15	.0243	.0527	.0679	.0483
Total	32	.0202	.0506	.0503	.0404
Low IQ Boys	19	-.0026	.0233	.0185	.0131
Low IQ Girls	18	.0165	.0289	.0317	.0257
Total	37	.0067	.0260	.0250	.0192
Total Boys	53	.0108	.0324	.0311	.0248
Total Girls	52	.0279	.0425	.0494	.0399
Grand Total	105	.0193	.0374	.0402	.0323

It is again seen that girls are more reactive than boys, and that bright children are more reactive than retarded children, although average children showed greatest total reactivity for this measure.

Table 47 shows variability of base level from a calculated line of best fit developed for the entire curve of the GSR chart. In effect, this measure is an index of base level changes during a session, as opposed to changes attributable to specific responses to stimuli. Another way to consider this measure is that of ongoing adaptation to the task as the subject reacts to the situation.

No consistent variability was found except in the grand total for all subjects by task. This would seem to show that as tasks progressed the base level became more variable, but in view of the specific findings by group and by task, this consclusion is not tenable. As a measure of value to this study, mean variability of base level seems unsuitable, but does provide some possibilities for consideration in future studies.

TABLE 47. MEAN VARIABILITY OF GSR BASE LEVEL FROM A STRAIGHT LINE OF BEST FIT FOR 105 RETARDED, NORMAL, AND BRIGHT CHILDREN, 1957-1958.

	N	Task 1	Task 2	Task 3	Total
High IQ Boys	17	.0882	.0381	.1041	.0768
High IQ Girls	19	.0569	.1035	.0627	.0744
Total	36	.0717	.0726	.0823	.0755
Ave. IQ Boys	17	.0344	.0546	.0991	.0627
Ave. IQ Girls	15	.0312	.0512	.0944	.0589
Total	32	.0329	.0530	.0969	.0609

Low IQ Boys	19	.0472	.0641	.0531	.0548
Low IQ Girls	18	.0384	.0522	.0480	.0462
Total	37	.0430	.0583	.0506	.0506
Total Boys	53	.0563	.0527	.0842	.0644
Total Girls	52	.0431	.0706	.0667	.0602
Grand Total	105	.0498	.0616	.0756	.0623

Table 48 shows the mean combined height of 500-ohm or greater decreases in resistance, expressed in $\sqrt{C}$ units, for a time interval of 15 minutes. This measure provides an index of specific responses of subjects to ongoing stimuli. Each 500-ohm decrease in resistance indicates specific reactivity as opposed to base level changes. The assumption was made that, as subjects underwent similar experiences during a 15-minute learning situation, opportunity to react to stimuli was roughly equivalent for each group. This would not be completely true, of course, for the individual subject, and only approximately true for groups. However, Table 48 shows trends bearing out this assumption. It will be seen that girls were more reactive than boys in all instances. It is also apparent that there are task trends, by IQ group but not always by sex, showing greater reactivity as tasks succeeded each other. This measure is a function both of number of responses and their magnitude. In order to further differentiate, Table 49 must be examined.

Table 49 shows the mean number of 500-ohm or greater decreases in resistance for each 15-minute interval. All peaks of required magnitude were counted, actual height being irrelevant in this index. As tasks progressed, the number of peaks increased, due both to the nature of the task and adaptation to the situation, in the opinion of the examiners. With each succeeding task subjects appeared to be more stimulated by the arithmetic activities and less affected by situational factors such as apparatus, examiners, electrodes, etc.

TABLE 48. MEAN COMBINED MAGNITUDE OF 500-OHM OR GREATER DECREASES IN RESISTANCE FOR 105 CHILDREN, 1957-1958.

	N	Task 1	Task 2	Task 3	Total
High IQ Boys	17	4.70	4.63	5.47	4.93
High IQ Girls	19	5.24	5.45	5.10	5.26
Total	36	4.98	5.06	5.28	5.11
Ave. IQ Boys	17	2.59	3.82	4.96	3.79
Ave. IQ Girls	15	3.97	4.98	6.95	5.30
Total	32	3.24	4.36	5.89	4.50
Low IQ Boys	19	2.83	3.39	3.67	3.30
Low IQ Girls	18	5.12	5.14	4.77	5.01
Total	37	3.94	4.24	4.20	4.13
Total Boys	53	3.35	3.92	4.66	3.98
Total Girls	52	4.83	5.21	5.52	5.18
Grand Total	105	4.08	4.56	5.08	4.58

TABLE 49. MEAN NUMBER OF 500-OHM OR GREATER GSR DECREASES IN RESISTANCE PER 15-MINUTE INTERVAL FOR 105 CHILDREN, 1957-1958.

	N	Task 1	Task 2	Task 3	Total
High IQ Boys	17	17.1	21.2	25.2	21.2
High IQ Girls	19	15.2	22.2	25.4	20.9
Total	36	16.1	21.7	25.3	21.0
Ave. IQ Boys	17	8.1	22.6	24.4	18.4
Ave. IQ Girls	15	16.0	17.3	23.1	18.8
Total	32	11.8	20.1	23.8	18.6
Low IQ Boys	19	10.5	16.1	18.0	14.9
Low IQ Girls	18	12.8	18.9	22.5	18.1
Total	37	11.6	17.5	20.2	16.4
Total Boys	53	11.8	19.8	22.4	18.0
Total Girls	52	14.6	19.6	23.7	19.3
Grand Total	105	13.2	19.7	23.0	18.6

Mean Data of Various Indices, 1958-1959

During the second year of the study the measure of variability from the base level was dropped as unsuitable. Further, the combined height of peaks was measured in conductance, rather than in $\sqrt{C}$, accentuating differences among groups. Procedures and other measures remained as before.

Table 50 shows mean base level and corresponds to Table 45. It is seen that, as previously, boys tend to be less emotionally aroused than girls. In general, base level decreased over the period of the two tasks, though not markedly so. Low IQ subjects were less reactive than the average, and the average less so than high IQ subjects.

Table 51 shows slope of base level and corresponds to Table 46. Generally, again, slopes are slightly upward, except for the average children for the first task. Comments previously made again apply.

TABLE 50. MEAN GSR BASE LEVEL FOR 110 RETARDED, NORMAL, AND BRIGHT CHILDREN OF FIFTH GRADE AGE, 1958-1959.

	N	Task 1	Task 2	Total
High IQ Boys	18	7.79	7.09	7.44
High IQ Girls	17	8.01	8.55	8.28
Total	35	7.89	7.80	7.85
Ave. IQ Boys	19	6.87	6.59	6.73
Ave. IQ Girls	20	8.10	7.48	7.79
Total	39	7.50	7.04	7.27
Low IQ Boys	18	6.88	6.64	6.76
Low IQ Girls	18	7.27	7.46	7.36
Total	36	7.07	7.05	7.06
Total Boys	55	7.17	6.77	6.97
Total Girls	55	7.80	7.80	7.80
Grand Total	110	7.49	7.29	7.39

TABLE 51. MEAN SLOPE OF GSR BASE LEVEL LINE DETERMINED FROM REGRESSION OF SELECTED POINTS ON CORRESPONDING TIME UNITS FOR 110 CHILDREN, 1958-1959.

	N	Task 1	Task 2	Total
High IQ Boys	18	.0129	.0384	.0256
High IQ Girls	17	.0331	.0364	.0347
Total	35	.0227	.0374	.0301
Ave. IQ Boys	19	-.0028	.0450	.0211
Ave. IQ Girls	20	-.0276	.0238	-.0019
Total	39	-.0156	.0341	.0093
Low IQ Boys	18	-.0084	.0089	.0003
Low IQ Girls	18	.0173	.0144	.0159
Total	36	.0045	.0117	.0081
Total Boys	55	.0005	.0310	.0158
Total Girls	55	.0058	.0246	.0152
Grand Total	110	.0032	.0278	.0155

Table 52 shows combined height of peaks expressed, however, in conductance units. Girls are found to be more reactive than boys, and bright children more than average, average more than retarded subjects.

Table 53 shows the number of 500-ohm or greater peaks, corresponding to Table 49. Girls were more reactive than boys, and high IQ more than average IQ, average more than retarded.

TABLE 52. MEAN COMBINED MAGNITUDE OF 500-OHM OR GREATER DECREASE IN RESISTANCE FOR 110 CHILDREN, 1958-1959.

	N	Task 1	Task 2	Total
High IQ Boys	18	35.14	17.00	26.07
High IQ Girls	17	40.88	18.18	29.54
Total	35	37.93	17.57	27.75
Ave. IQ Boys	19	22.87	14.37	18.61
Ave. IQ Girls	20	34.52	18.35	26.46
Total	39	28.85	16.41	22.63
Low IQ Boys	18	16.83	12.64	14.73
Low IQ Girls	18	26.44	14.11	20.28
Total	36	21.64	13.38	17.50
Total Boys	55	24.91	14.66	19.78
Total Girls	55	33.85	16.91	25.39
Grand Total	110	29.38	15.79	22.58

TABLE 53. MEAN NUMBER OF 500-OHM OR GREATER DECREASES IN RESISTANCE PER 15-MINUTE INTERVAL FOR 110 CHILDREN, 1958-1959.

	N	Task 1	Task 2	Total
High IQ Boys	18	32.17	19.72	25.94
High IQ Girls	17	44.65	25.12	34.88
Total	35	38.23	22.34	30.29
Ave. IQ Boys	19	21.84	16.58	19.21
Ave. IQ Girls	20	33.45	22.55	28.00
Total	39	27.79	19.64	23.72
Low IQ Boys	18	21.56	17.33	19.44
Low IQ Girls	18	32.94	19.89	26.42
Total	36	27.25	18.61	22.93
Total Boys	55	25.13	17.85	21.49
Total Girls	55	36.75	22.47	29.61
Grand Total	110	30.94	20.16	25.55

Discussion. GSR indices used in this study related both to the base level during stimulation and to the specific responses obtained during the learning situation. Measures of mean base level indicated a decrease with each ensuing task, and showed that girls were more generally emotionally mobilized than boys. The slopes of base lines were generally slightly upward, indicating that during each task subjects became more emotionally reactive with the progress of time, and that this occurred also with succeeding tasks. The number of peaks increased with each succeeding task, greater reactivity being found for the bright children, then for the average, and lastly, for the retarded subjects in this study. Except in the case of the low IQ group, no sex differences were discovered for number of specific responses, but for that group, girls were more reactive than boys. In terms of strength combined with number of reactions to specific stimuli, girls were more reactive than boys, and with succeeding tasks reactivity increased. Variability of base level from a line of best fit was relatively useless in differentiation of any group variables.

In attempting to explain these differences, it may be shown that at least two emotional patterns of behavior are operating. The fact that base level generally decreased with task indicates that less general autonomic response was mobilized toward the situation as a whole. Boys were less reactive than girls, and there is some indication that retarded children are less generally reactive than the bright or average. Whether this represents threat posed by the learning task and succeeding adaptation to the tasks as subjects became acquainted with the procedures and personnel involved cannot be answered statistically, although this is the belief of the examiners. On the other hand, succeeding tasks may have been less motivating, but this is not born out by other indices. It is probably not inaccurate to adopt the first inference as explaining the general lowering of base level.

The mean slopes of base lines, both within the task and among them indicates that there was a progression of increased autonomic activity as the subject was challenged by the task. It may be inferred that such GSR changes indicate increases accompanying motivation rather than fear or threat, a general tension due to trying to solve the problems.

Measures of combined height of peaks and number of peaks show that bright children responded more to specific stimuli than did other groups, that girls were more reactive than boys, and that each succeeding task produced more responses. This may be due in part to the nature of the tasks, and in part may be a function of lowered base level (see above), but it also is true that IQ and sex differences were found. This is interpreted as showing that bright children and girls were apparently more aware of specific stimuli, apparently responded more frequently and strongly and may have been more strongly challenged by the arithmetic tasks. The belief that these indices indicate fear or threat per se is discounted, and the counter-belief is posed that these indices are in reality showing freedom to respond, a lowering of threat (if any), and generrally greater awareness and motivation. Whether intelligence and sex differences also may involve differing body chemistry or autonomic functioning cannot be studied in this context.

The general picture is that of adaptation to succeeding tasks by all groups, of girls reacting more emotionally than boys, and of bright children reacting more than average or retarded children. The retarded apparently just are not as strongly emotionally stimulated as other groups in this study and do not react as strongly. The bright may be better able to make use of their vital energy or "life force" in being on a higher level of awareness and responsiveness. Whether personality differences may affect these findings will be shown later.

Analysis of Variance of Mean Data

1957-1958.

Tables 54-58 show analysis of variance for the various GSR measures M, B, V, N, and P respectively, by sex, IQ, and interaction. Further tables will be introduced to show task changes, a different test of significance being used.

TABLE 54. ANALYSIS OF VARIANCE OF MEAN BASE LEVEL GSR RESPONSE FOR 105 RETARDED, NORMAL, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, 1957-1958.

Source	df	Sum of Squares	Mean Square	F	p
Sex	1	7.6921	7.6921	4.128	<.05
IQ	2	0.8152	0.4076	0.219	n.s.
Sex x IQ	2	2.6800	1.3400	0.719	n.s.
Inter.	99	184.4539	1.8632		
Total	104	195.6412			

TABLE 55. ANALYSIS OF VARIANCE OF SLOPE OF BASE LEVEL FOR 105 MENTALLY RETARDED, NORMAL, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, 1957-1958.

Source	df	Sum of Squares	Mean Square	F	p
Sex	1	.006025	.006025	3.838*	.05*
IQ	2	.009781	.004890	3.115	<.05
Sex x IQ	2	.0000	.0000	0.000	n.s.
Inter.	99	.155480	.001570		
Total	104	.171273			

* For F 3.94, p .05

TABLE 56. ANALYSIS OF VARIANCE OF VARIABILITY OF GSR BASE LEVEL FOR 105 RETARDED, BRIGHT, AND AVERAGE CHILDREN OF FOURTH GRADE AGE, 1957-1958.

Source	df	Sum of Squares	Mean Square	F	p
Sex	1	.00047	.00047	0.161	n.s
IQ	2	.01136	.00568	1.945	>.05
Sex x IQ	2	.00038	.00019	0.065	n.s
Inter.	99	.28873	.00292		
Total	104	.31315			

TABLE 57. ANALYSIS OF VARIANCE OF COMBINED HEIGHT OF PEAKS FOR 15-MINUTE INTERVAL OF GSR DATA FOR 105 CHILDREN, 1957-1958.

Source	df	Sum of Squares	Mean Square	F	p
Sex	1	38.22	38.22	5.158	< .05
IQ	2	17.69	8.84	1.193	n. s.
Sex x IQ	2	8.74	4.37	0.590	n. s.
Inter.	99	733.53	7.41		
	104	798.18			

TABLE 58. ANALYSIS OF VARIANCE OF NUMBER OF 500-OHM OR GREATER GSR PEAKS FOR 105 RETARDED, AVERAGE, AND BRIGHT CHILDREN, 1957-1958.

Source		Sum of Squares	Mean Square	F	p
Sex	1	47.51	47.51	0.512	n. s.
IQ	2	394.36	197.18	2.126	>.05
Sex x IQ	2	57.41	28.70	0.309	n. s.
Inter.	99	9183.23	92.76		
Total	104	9682.51			

It will be seen that analysis of variance provides justification for belief in significant sex difference reactions for three of the GSR measures used in this study, but that IQ is not differentiated as a source of variability. To the researcher this represents a real problem in view of the consistent trends found among the measure as previously described. It is probably justifiable to conclude that statistically significant differences might have been found, had the stimuli in the various situations been more carefully controlled, an impossibility for this type of study.

Table 59 shows tests of significance for differences between mean data measures by task.

TABLE 59. COMPARISON OF HIGHEST AND LOWEST TASK MEANS FOR FIVE GSR MEASURES OF 105 MENTALLY RETARDED, AVERAGE, AND BRIGHT CHILDREN, 1957-1958.

	Boys N (53)				Girls N (52)				Total N (105)			
	Tasks	Diff.	t	P	Tasks	Diff.	t	P	Tasks	Diff.	t	P
M	1-2	0.81	2.884	<.01	1-3	1.02	3.181	<.01	1-3	.78	3.17	<.01
B	1-2	.02	1.785	<.10	1-3	.02	2.431	<.02	1-3	.02	3.39	<.01
V	2-3	.03	1.902	<.10	1-2	.02	2.198	<.05	1-3	.02	2.38	<.02
P	1-3	1.31	2.053	<.05	1-3	.69	.719	<.50	1-3	1.00	1.79	<.10
N	1-3	10.55	4.457	<.001	1-3	9.13	3.110	<.01	1-3	9.80	5.27	<.001

As is seen, significant task differences are found between means for all except measure P for average girls and total group. These are significant at the .5 and .1

level, respectively. It may be concluded that adaptation to task, and also kind of task were involved. However, base level of conductance tended to decrease whereas number of peaks and height of peaks increased, lending support to interpretations previously made.

1958-1959. Table 60 shows analysis of variance for the four measures employed during the second year of the study, with modifications as previously described. It is seen that for two of the measures, sex and IQ differences are significant, and that for mean base level, sex differences are significant. Inferences drawn for first year material are now born out by statistical treatment and apparently justified.

TABLE 60. ANALYSES OF VARIANCE OF FOUR GSR MEASURES FOR 110 RETARDED, NORMAL, AND BRIGHT CHILDREN OF FIFTH GRADE AGE, 1958-1959.

GSR Measure	Source of Variation	df	Sum of Squares	Mean Squares	F	p
Number of 500-Ohm or Greater Peaks	Sex	1	1812.385	1812.385	12.545	<.01
	IQ	2	1162.859	581.430	4.025	<.05
	Sex x IQ	2	76.295	38.148	0.264	n.s.
	Error	104	15024.936	144.470		
	Total	109	18076.475			
Combined Height of Peaks	Sex	1	864.081	864.081	4.022	<.05
	IQ	2	1865.177	932.588	4.341	<.05
	Sex x IQ	2	118.378	59.189	0.276	n.s.
	Error	104	22343.101	214.838		
	Total	109	25190.737			
Mean Base Level	Sex	1	18.9696	18.9696	6.983	<.01
	IQ	2	11.7425	5.8712	2.161	>.05
	Sex x IQ	2	1.4734	.7367	0.271	n.s.
	Error	104	282.5020	2.7164		
	Total	109				
Slope of Base Level	Sex	1	.00000734	.00000734	0.002	n.s.
	IQ	2	.01090961	.00545480	1.528	n.s.
	Sex x IQ	2	.00805637	.00402818	1.128	n.s.
	Error	104	.37129514	.00357015		n.s.
	Total	109				

Relationships of Personality Ratings to GSR Data

Each subject was seen by a psychologist and rated on a 10-point scale as to a) emotional adjustment; b) over- or under-achievement in relation to ability; c) integration of self concept; d) extrovertive-introvertive behavior; e) aggressive-withdrawal tendencies; and f) reality of estimate of own abilities. A psychologist saw subject, and employed figure-drawing, Rorschach, parts of the T. A. T., and interview techniques. Protocols were then passed to a second psychologist, who rated the subject from the protocols but did not see the subject. Reliabilities are shown in Table 61. They are reasonably high for scales a, c, d, and e, but poor for scales b and f. Psychologists discussed with each other the various definitions required for the ratings, and made several practice tries. In addition, some of the psychologists had worked as a team for several years, thus helping to insure validity.

TABLE 61. RELIABILITY OF PSYCHOLOGISTS' RATINGS OF PERSONALITY VARIABLES FOR 105 CHILDREN OF FOURTH GRADE AGE, 1957-1958.

	Scale					
	a	b	c	d	e	f
All subjects	.770	.527	.677	.682	.666	.411
High IQ	.796	.385	.619	.767	.686	.292
Ave. IQ	.765	.647	.714	.591	.605	.197
Low IQ	.752	.557	.693	.725	.689	.503
All Girls	.772	.456	.705	.648	.650	.421
All Boys	.752	.564	.646	.729	.678	.385

Relationships Between GSR Measures and Psychologists' Ratings

Table 62 shows correlations between the various GSR measures in terms of means for the combination of three arithmetic tasks, and mean ratings of the two psychologists rating each subject.

TABLE 62. CORRELATIONS OF FIVE GSR MEASURES AND SIX PSYCHOLOGISTS' RATINGS FOR 105 CHILDREN OF FOURTH GRADE AGE, 1957-1958.

	M	B	V	P	N	
M						M Mean base level
B	.309					B Slope of base line
V	.248	.000				V Variability of base line
P	.330	.362	.403			P Combined height of peaks
N	-.227	.186	.221	.698		N Number of peaks

	Psychologists' Ratings						
	a	b	c	d	e	f	
a	.561						a Emotional adjustment
b	.561						b Over- or under-achievement
c	.724	.545					c Integration of self concept
d	.124	.032	.105				d Extrovert-introvert
e	-.091	-.056	.005	.786			e Aggressive-withdrawal behav.
f	.213	.286	.186	.374	.284		f Estimate of own abilities

Psychol. Ratings	M	B	V	P	N
a	.040	.086	-.139	-.037	.031
b	-.081	.010	-.168	-.152	-.083
c	.037	.063	.010	.013	-.011
d	-.087	-.213	.011	.086	.156
e	-.017	-.256	.007	.006	.019
f	-.149	-.138	-.049	-.003	.116

r of .18 is significant at 5% level; r of .24 at 1% level.

As expected, correlations indicate that there is interdependence among the various GSR measures. Two apparent clusters of variables are found among psychologists' ratings. One such cluster includes variables a, b, and c (emotional adjustment, over- or under-achievement, integration of self concept). A second cluster includes variables d and e (introvert-extrovert, aggressive-withdrawal). Variable f appears to have some relationship to all other variables rated by the psychologists. It may be concluded that, in effect, psychologists were actually rating emotional adjustment and pattern of emotional expression, rather than six distinct variables.

The lack of significant correlations between GSR measures and psychologists' ratings does not support the findings of Jones (1950) or Bramble (1941) who found relationships between covert reactors and high GSR reactivity, and vice versa, and a group which were somewhat ambiguous in behavior. This may be due in part to the fact that ratings d and e are not entirely synonymous with overt-covert behavioral definitions, and because low intercorrelations of GSR variables were found from task to task. Table 63 presents this data.

TABLE 63. INTERTASK CORRELATIONS OF FIVE GSR MEASURES FOR 105 MENTALLY RETARDED, AVERAGE, AND BRIGHT CHILDREN OF FOURTH GRADE AGE, 1957-1958.

	High IQ N (36)			Ave. IQ N (32)			Low IQ N (37)		
	Task Comparison			Task Comparison			Task Comparison		
GSR	1-2	2-3	1-3	1-2	2-3	1-3	1-2	2-3	1-3
M	.240	.252	.024	.182	.037	.093	.719	.393	.197
B	.323	.221	.366	.081	.160	.331	-.088	.055	.325
V	.096	-.077	.323	-.001	.320	.104	.064	.041	.103
N	.359	.068	-.021	.247	.355	-.002	.443	.160	.315
P	.455	.321	.036	.207	.194	.337	.284	.148	-.076

In this study is concluded that no significant relationships were found between personality variables rated by psychologists and the five GSR measures employed. Lack of consistency of GSR response may well be one factor producing data leading to this conclusion.

The Taylor Manifest Anxiety Scale

It was decided to test children during 1958-1959 with the Taylor Manifest Anxiety Scale (1953) to attempt to determine to what extent psychologists' ratings and GSR measures were related to that estimate of anxiety. GSR measures employed were N (the number of peaks of 500 or more ohms resistance) and P (the combined height of peaks expressed in conductance). Psychologists' ratings were A (emotional adjustment), C (expression of emotion as extrovert or introvert), and D (pattern of behavior expressed as aggresive or withdrawn). High psychologists' ratings referred to good adjustment, extroversion, and aggressive (as opposed to withdrawn) behavior.

Table 64 shows the means of the "Yes" scale of the anxiety measure, the higher the mean, the more the presumed anxiety.

TABLE 64. MEANS OF "YES" SCALE OF TAYLOR MANIFEST ANXIETY SCALE FOR 40 RETARDED, 40 AVERAGE, AND 40 HIGH IQ CHILDREN.

	N	Mean "Yes" Scale
High IQ Boys	20	10.40
High IQ Girls	20	13.50
Total	40	11.95
Ave. IQ Boys	20	13.00
Ave. IQ Girls	20	16.00
Total	40	14.80
Low IQ Boys	20	18.05
Low IQ Girls	20	22.20
Total	40	20.13

These results would seem to indicate that high IQ children are least anxious (or at least admit to least anxiety) and low IQ children the most anxious of any in this study. However, anxiety may be overtly manifest or covertly present. Table 65 shows the correlations between GSR and psychologists' ratings and the "Yes" scale of the Taylor instrument.

TABLE 65. CORRELATIONS BETWEEN GSR MEASURES, PSYCHOLOGISTS' RATINGS, AND THE "YES" SCALE OF THE TAYLOR MANIFEST ANXIETY SCALE FOR 120 LOW, AVERAGE, AND HIGH IQ SUBJECTS, 1958-1959.

High IQ		Ave. IQ		Low IQ		Total Group	
r_{NY}	.333	r_{NY}	.488	r_{NY}	.198	r_{NY}	.245
r_{PY}	.299	r_{PY}	.436	r_{PY}	.194	r_{PY}	.182
r_{AY}	-.069	r_{AY}	-.112	r_{AY}	-.009	r_{AY}	-.092
r_{CY}	.042	r_{CY}	-.083	r_{CY}	-.176	r_{CY}	-.225
r_{DY}	-.059	r_{DY}	-.038	r_{DY}	.062	r_{DY}	-.029

A fairly low positive relationship is found between the number of peaks and the ratings on the anxiety scale, as is found between combined height of peaks (a related measure) and the anxiety scale. This would tend to show that GSR measures and the anxiety scale are measuring somewhat the same reactions, but the relationship is not strong nor clear. Psychologists' ratings of adjustment, of extrovert-introvert and aggressive-withdrawal behavior are essentially zero, indicating that either there is a high degree of unreliability of the anxiety scale, (since reliability of psychologists was found to be reasonably high), or that different behaviors are being measured. The latter is accepted as being more likely to be a correct assumption, and it therefore seems apparent that the manifest anxiety scale does not distinguish between extrovertive-introvertive or aggressive-withdrawal behaviors, nor does it correlate well in this study with the definition of adjustment used by the clinical psychologists.

It is probably correct to say that these results substantiate the conclusions drawn on page 40, and that the mentally retarded children are relatively anxious, dependent, acceptant of others, attempting to seem successful and over-rating themselves as a result, even though in acceptant and warm classrooms.

Observations of Emotional Behavior

During the first year of the two-year study, the attempt was made to have the GSR operator, as observer, keep account of the behavior of the subject, using a continuing diary form of recording behavior. It was found that this technique was unsuitable due to inability to interpret behaviors for statistical purposes, and inability to acquaint the observer with habitual behavior of the subject. Although gross differences were found among a few of the subjects, behavior for most was considered ambiguous and variable.

A check list (see Appendix E) was developed for observation of body movements as a possible index of emotional behavior. Unfortunately, inter-rater reliability was extremely low. It was found that difficulty in determining whether a given movement could be construed as fitting a given definition, whether movements were artifacts of the learning task, and whether the activity merely represented mannerisms of subjects all conspired to make highly tenuous any results. For this reason, the researcher concludes that a more highly defined check list of behaviors, coupled with extensive rater training, would be necessary for this procedure to be of value.

Test of the Hypothesis

The hypothesis to be tested is that mentally retarded children become more emotional when faced with certain school learning situations than do normally developing children. Although material presented previously in this report has tended to negate this hypothesis, it was decided to make a further test. The first hypothesis indicated the belief that mentally retarded children possess less realistic self concepts than normally developing children. It was then argued that the unrealistic self concept might lead to unrealistic levels of aspiration, with subsequent greater difficulty in adjusting to learning situations. It was found that retarded children do, indeed, possess

less realistic self concepts, but that this was not directly related to level of aspiration. However, it seems likely that unrealistic self concepts lead to inadequate behavior and that this may be accompanied by increased emotional reactivity in a learning situation. Table 66 presents mean data from the total of three arithmetic learning tasks, together with standard deviations for GSR and self concept discrepancy measures. It is of interest in further bearing out trends as to IQ differences obtained on individual task GSR measures and measures of the self concept. As is seen, low IQ children are less reactive emotionally and have less realistic self concepts.

TABLE 66. MEANS AND STANDARD DEVIATIONS OF FIVE GSR MEASURES FOR COMBINED TASKS AND SELF-CONCEPT DISCREPANCY SCORES FOR 104 SUBJECTS, 1958-1959.

		GSR Measures									
		M		B		V		P		N	
	N	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
High IQ											
Boys	16	7.75	1.02	.0350	.0261	.0801	.0729	5.17	3.13	22.00	7.
Girls	19	8.53	1.26	.0468	.0422	.0744	.0589	5.26	2.96	20.84	12.
Ave. IQ											
Boys	17	7.92	1.14	.0334	.0449	.0627	.0603	3.79	1.78	18.35	9.
Girls	15	8.70	1.09	.0483	.0266	.0589	.0473	5.30	2.73	18.87	9.
Low IQ											
Boys	19	8.01	1.80	.0131	.0424	.0548	.0363	3.30	1.65	14.74	8.
Girls	18	8.13	1.41	.0257	.0353	.0462	.0276	5.01	3.15	18.06	7.

Self Concept Discrepancies		
High IQ Boys	1.81	1.81
Girls	1.95	0.56
Ave. IQ Boys	4.00	1.37
Girls	4.27	2.32
Low IQ Boys	3.68	1.75
Girls	4.11	1.49

Table 67 presents correlations between GSR measures and self concept discrepancy scores. It is seen that the relationship is small and in most cases not statistically significant, but that the direction of relationship is essentially in a negative direction. That is, subjects with realistic self concepts tend to be more reactive galvanically.

TABLE 67. CORRELATIONS BETWEEN FIVE GSR MEASURES AND SELF CONCEPT DISCREPANCY SCORES (NUMBER OF DISCREPANT SCALES) FOR 104 SUBJECTS, 1957-1958.

		r(MS)	r(BS)	r(VS)	r(PS)	r(NS)	N
High IQ	Boys	.115	-.033	-.077	-.218	-.494	16
	Girls	.237	-.083	-.065	-.120	-.089	19
Ave. IQ	Boys	.037	-.117	-.177	.090	.208	17
	Girls	-.053	-.012	.012	-.278	-.294	15
Low IQ	Boys	-.402	-.361	-.287	-.218	.320	19
	Girls	-.228	.066	.105	.217	.111	18

(In both Tables 66 and 67 one high IQ boy was eliminated because self concept scores were not available.)

It is the belief of the researcher that the second hypothesis of the study, that mentally retarded children exhibit more emotionality in a learning situation than normally developing children is disproved.

Discussion and Implications

In this study it was found that (in general) mentally retarded children reacted less strongly to specific stimuli than normally developing children, and that girls reacted more strongly than boys. Task differences, showing increased adaptation to the situation, were also found. No significant relationship was found between psychologists' ratings of personality variables and GSR measures in this study. An ambiguous, small, *but essentially negative relationship was found between realism* of self concept and emotional reactivity measured by the GSR. In effect, the picture is that of mentally retarded children being less aware of specific stimuli and reacting less strongly to them than normally developing children. This leads to the belief that the emotional behavior studied is not that of fear or reaction to threat so much as a measure of challenge, motivation, or involvement in the situation. The belief is partially substantiated that familial mentally retarded subjects (in this study) are simply living on a lower level of awareness and response than normal children and appear to be less capable of mobilizing autonomic resources.

Since work done on the second year's data substantiates the above conclusions, it may be implied that a series of studies in which stimuli and other testing conditions are more carefully controlled should be undertaken. If the tentative nature of this work is carefully considered, several implications may exist:

a. Mentally retarded children must be more carefully studied in terms of awareness of stimuli to find ways to help them to become more highly aware of stimuli to find ways to help them to become more highly aware and to react more strongly. Implied are attention to the stimulus itself, perceptual factors, repetition of stimulus-response conditions, motivation, and emotional adjustment.

b. Certain medico-psychological studies are concerned with the effect of drugs upon awareness and response. The present study suggests the possibility of an interdisciplinary approach.

c. The entire autonomic pattern, not merely the GSR, should be studied in relation to these children to discover more meaningful relationships among the variables of conditions and response patterns.

d. Mentally retarded children may not be expected to differentiate stimuli as strongly, to have equal attention span, or to enter complex learning situations as successfully as normal children. This is in accordance with present practices in teaching and job placement of these individuals. However, individual differences are marked, and the worker with these subjects must consider this carefully in setting up a learning or job program for each subject.

Section VI

Changes in Self Concept

The third hypothesis states that "efficiency of certain kinds of problem-solving behviors of mentally retarded children can be improved by theaching them more realistic self concepts, levels of aspiration, and ways of reacting emotionally." Accordingly, it was decided to employ procedures for part of the sample which might invite changes in the self concept. If the self concept were found to change, level of aspiration and problem-solving procedures of the subjects should also change, but if the self concept did not materially change, the hypothesis would be negated.

The self concept may be worked with in many ways, including psychotherapy, group therapy, role playing, interviewing, and the like. In this study the sample was made up of children in the schools, and means of working with their self concepts were hence limited. Since reality of self concept is the central issue in this hypothesis, it was decided that teachers, working informally over a period of three or four months, might be able to bring highly discrepant subjects into closer touch with the reality of their achievements as measured by the rating scale discussed previously, rather than attempting to employ psychologists for this purpose.

The entire sample was first examined on the basis of data obtained during the first year of the study to find subjects which averaged three or more deciles discrepancy from reality on the rating scale employed. Fifty such subjects were obtained and divided randomly into an experimental group and a discrepant-control group. The experimental group consisted of 4 high IQ subjects, and 11 low IQ subjects. The remainder of the sample of 120 children, 70 in all, were considered to be a non-discrepant group and were employed for comparison. This group consisted of 32 high IQ subjects, 20 average IQ subjects, and 19 low IQ subjects. Thus the discrepant group ratios among high, average, and low IQ subjects were almost exactly equivalent, but the non-discrepant group of 70 was heavily loaded with bright subjects.

Teachers and principals of schools in which the experiment group was located were informed in two ways of unrealistic self ratings: a letter (see samples in Appendix F) was written to the teacher and to the principal, describing the self ratings and comparing them to reality, and suggesting techniques for improving the child's reality of self estimate; and conferences with principals and teachers discussing the same information. Such letters and conferences were provided in September and early October of 1958. Changes in self-ratings for the various groups were studied on the basis of the first rating of the second year of the study, obtained in September or October, 1958, as compared with the last rating, obtained in February or early March, 1959.

Tables 68, 69, and 70 show relationships obtained for these ratings.

TABLE 68. COMPARISON OF SELF CONCEPT DISCREPANCIES IN DECILES BETWEEN RATINGS OBTAINED IN OCTOBER, 1958, AND FEBRUARY, 1959, FOR HIGH, AVERAGE, AND LOW IQ SUBJECTS IN EXPERIMENTAL GROUP.

N=25	1st Rating	2nd Rating	
Item 1	1.16	1.96	Arithmetic
Item 2	1.76	1.96	Reading
Item 3	1.32	1.24	Language
Item 4	.48	.76	Peer Acceptance
Item 5	2.44	2.28	Adult Acceptance
Item 6	1.48	2.60	Playground, Sports
Item 7	1.60	.84	Leadership
Item 8	1.36	1.16	Intelligence
Algebraic Total	11.60	12.80	
Absolute Total	21.28	22.96	

TABLE 69. COMPARISON OF SELF CONCEPT DISCREPANCIES IN DECILES BETWEEN RATINGS OBTAINED IN OCTOBER, 1958, AND FEBRUARY, 1959, FOR HIGH, AVERAGE, AND LOW IQ SUBJECTS IN DISCREPANT NON-EXPERIMENTAL GROUP.

N=25	1st Rating	2nd Rating	
Item 1	1.60	2.44	Arithmetic
Item 2	1.64	.96	Reading
Item 3	1.80	1.92	Language
Item 4	1.80	2.20	Peer Acceptance
Item 5	2.52	1.92	Adult Acceptance
Item 6	1.48	2.20	Playground, Sports
Item 7	.92	1.08	Leadership
Item 8	1.20	1.28	Intelligence
Algebraic Total	12.96	13.92	
Absolute Total	23.76	23.20	

TABLE 70. COMPARISON OF SELF CONCEPT DISCREPANCIES IN DECILES BETWEEN RATINGS OBTAINED IN OCTOBER, 1958, AND FEBRUARY, 1959, FOR HIGH, AVERAGE, AND LOW IQ SUBJECTS IN NON-DISCREPANT GROUP.

N=71	1st Rating	2nd Rating	
Item 1	.27	.69	Arithmetic
Item 2	.25	.23	Reading
Item 3	.32	.41	Language
Item 4	1.56	1.35	Peer Acceptance
Item 5	.89	.56	Adult Acceptance
Item 6	1.48	1.08	Playground, Sports
Item 7	.04	-.04	Leadership
Item 8	.28	.94	Intelligence
Algebraic Total	5.08	5.23	
Absolute Total	18.34	18.17	

It is seen that no significant difference exists between the mean self ratings for any group between September and February. That is, it was not found that reality of self estimate was improved in the experimental group. Further, it is demonstrated that the experimental and discrepant-control groups did not differ significantly from each other in any of the total ratings. Algebraic totals were used for item discrepancies, some subjects under-rating and some over-rating themselves. In addition, total discrepancies without regard to sign were employed.

It is also evident that the selection made the previous year as to discrepant and non-discrepant subjects held through-out the second year of the study. Subjects originally found to be discrepant remained significantly more so than those found to be non-discrepant. Evidently certain subjects are much more able to assess reality than others, and remain so. It will be remembered that the non-discrepant group had a much higher proportion of bright subjects than the discrepant groups.

No clear relationship is demonstrated as to item discrepancy with regard to the discrepant groups. However, for the non-discrepant group it is clear that peer acceptance and playground or sports ability are much less realistically assessed by the subjects than other measures. Leadership and academic achievement seem best assessed by these subjects.

Since reality of self concepts was not found to improve, it can only be concluded that for this study it has not been shown that changes in self concept are related to changes in level of aspiration and learning efficiency. The hypothesis has not been substantiated. However, this researcher feels that further experimentation of this nature is indicated. Studies of the self concept previously referred to have indicated that repeated Q-sorts gain reliability and may also gain in realism. It is felt that a captive population, perhaps obtainable in a state institution, should be studied, and that more intensive work in aiding the subject to assess reality might show different results from those obtained in this study.

Section VII
Summary and Conclusions

Twenty boys and twenty girls of low IQ, twenty boys and twenty girls of average IQ, and twenty boys and twenty girls of high IQ were studied for two years, overlap among the sample being fifteen subjects. At the beginning of the study, subjects were of fourth grade age, located in regular and special classrooms in the cities of Madison and Milwaukee. During the second year of the study these subjects were of regular fifth grade classrooms or of fifth grade age, if retarded.

Data obtained included psychologists' ratings of personality and adjustment, based on clinical interviews, Rorschachs, parts of the TAT, and figure-drawing test. Other data were obtained using the WISC; the primary and elementary forms of the California Achievement Tests; sociometric devices; self ratings of areas of the self concept; teacher ratings comparable to the self ratings; physical examinations; and GSR data. Five arithmetic tasks were administered individually to each subject, those provided during the first year being counting, problem-solving, and addition tasks. Tasks for the second year included subtraction and a second penny problem-solving task.

Hypotheses to be tested were:

a) Mentally retarded children possess unrealistic self concepts and subsequent unrealistic levels of aspiration in certain school learning situations as compared to normally developing children.

b) Mentally retarded children become more emotionally disturbed than normally developing children when faced with certain school learning situations.

c) Efficiency of certain kinds of problem-solving behaviors of mentally retarded children can be improved by teaching them more realistic self concepts, levels of aspiration, and ways of reacting emotionally.

None of the hypotheses were substantiated in full. However, findings of interest were made. For subjects in this study it is concluded that:

a. Mentally retarded children have less well-differentiated self concepts than average or bright children.

b. Mentally retarded children more generally tend to over-estimate success than average or bright children.

c. Bright children tend to rate themselves most highly, retarded and average children following in that order.

d. Mentally retarded children have less realistic self concepts than bright or average children.

e. Mentally retarded children have less accurate levels of aspiration than aveage or bright children.

f. The self estimate varies not only with the child, but with intelligence, sex, and situation.

g. Psychologists' ratings of self estimate do not correlate highly with those obtained by examiners. In the case of bright children, psychologists' ratings are more discrepant from reality, whereas for average children, psychologists' ratings are closer to reality. For retarded children, no significant difference can be found between examiners' and psychologists' ratings.

h. Self concept and level of aspiration ratings of mentally retarded children are less reliable than those of average or bright children.

i. If treated as groups, mentally retarded children have least accurate self concepts and also least accurate levels of aspiration.

j. If treated as individuals, no relationships can be demonstrated between self concept and level of aspiration discrepancies for any of the groups in this study.

k. Mentally retarded children react less strongly and less frequently to stimuli provided in learning situations as measured by GSR.

l. No relationship in this study was found between covert and overt reactivity and the GSR.

m. Emotional reactivity as measured by certain GSR indices increased both during a given task and with succeeding tasks. This is taken to mean that freedom to respond to task stimuli increased.

m. Girls were found more reactive on GSR measures than boys.

n. By methods employed in this study, reality of self concept was not shown to improve.

o. Mentally retarded subjects were found, on the manifest anxiety scale, to exhibit more anxiety than average subjects, and average more than bright subjects.

p. According to psychologists' ratings, bright children are best adjusted, mentally retarded next best adjusted, and average children least well adjusted in this study. Average boys are least well adjusted of any of the groups utilized.

The general picture is that which might be expected. The mentally retarded subjects may be characterized as being eager to please, friendly, reasonably happy in their classrooms, but exhibiting underlying anxiety. They are not as reactive to stimuli nor do they appear to differentiate ~~stiuli~~ stimuli as well as average or bright subjects.

The retarded are not realistic in self concept, not reliable in verbalizing self concepts, and do not differentiate areas of the self concept well. Levels of aspiration are unrealistic and unreliable, and efficiency of problem-solving or learning of arithmetic is low ~~as~~ expected. However, it must be noted that individual differences are found among the retarded, as among other subjects, and some did unexpectedly well in certain areas measured.

The bright children are, as expected, more realistic, assess themselves most highly, are most reliable in self rating, and differentiate areas of the self concept better than other groups. They are more reactive in learning situations and are considered well adjusted and less anxious than other subjects. Average subjects, with some exceptions, appear to fall in between bright and retarded subjects on most measures.

Previous studies have tended to show that, although individual differences exist in quantity, abilities in one area tend to be accompanied by abilities in other areas--that is, as Terman showed, a gifted person tends to also be well adjusted, to achieve well, to be physically well developed and healthy, and the like. In this study the group differences found tend to confirm this point of view. The retarded are generally lacking in all of the areas studied, and the bright are generally highly successful in these same areas.

It is suggested that a great deal of work still needs to be done in areas sampled in this study, and suggestions ~~have been~~ are implied with each section of this report. The greatest problem in conducting this research was that of inability to control conditions, since the public schools quite rightfully could tolerate no great disturbace of their curricular activities. Another problem was that of time limitations. It is felt that particularly in attempting to change the self estimate in the direction of more realism that lack of time to work intensively with subjects may have militated against the efforts. It is the intention of this researcher to continue efforts in this area, employing resources in state institutions available to him.

Summary of Staff Engaged

T. A. Ringness, Project Director, February 1957-June 1959
Elmira Layague, Project Assistant, September 1957-June 1958
Robert Fischer, Project Assistant, September 1957-June 1959
Deanne Donoghue, Project Assistant, September 1958-March 1959
Zacharia Ethnasios, Project Assistant, March 1959-June 1959
Cyril Alberga, Project Assistant, February 1959-May 1959

Consultants as follows: (for special purposes only, not continuous)
Statistical—Harlow Halvorsen, IBM program
Psychologists—Rudolph Mathias
Don Bratrude
Chas. Wirls
Margaret Smith
Francis Enos

Four typists were engaged at various stages of the project.

In addition, the work of Ralph Tindall, Chief Psychologist, Milwaukee Public Schools; Carl Waller, Director of Child Study, Madison Public Schools; the various teachers and school principals; and aid in gathering data provided by assistants under the Klausmeier project (484-2262) must be acknowledged.

BIBLIOGRAPHY

1. Bramble, H.E. "A Study of Apparent Changes in Skin Resistance as Related to Certain Behavior Traits in Adolescents." Unpubl. M.A. Thesis, Univ. Calif., 1942.

2. *California Achievement Tests, Technical Report, 1957 Edition.* Los Angeles: California Test Bureau, 1957.

3. Cohen, B.D. and I.M. Steisel. "The Effect of Two Degrees of Failure on Level of Aspiration," *J. Abn. Soc. Psychol.*, 1951, 46, pp. 79-82.

4. Darling, R.P. "Autonomic Action in Relation to Personality Tests of Children." *J. Abn. Soc. Psychol.*, 1940, 35, pp. 246-260.

5. Darrow, C.W. and L.L. Heath. "Reaction Tendencies Relating to Personality." In Lashley, K.S. *Studies in the Dynamics of Behavior.* Chicago: Univ. Chicago Press, 1932, pp. 59-261.

6. Enos, Francis A. *A Study of the Relationships Between Physical Status, Emotional Adjustment Scores, and Friendship Choices of Fourth Grade Children.* Unpubl. Ph.D. dissert., Univ. Wisconsin, 1958.

7. Feldhusen, John F. *A Study of Efficiency of Learning and Retention Among Children of Low, Average, and High Intelligence at a Mean Age of 112 Months.* Unpubl. Ph.D. dissert., Univ. Wisconsin, 1958.

8. Gates, A.I., A.T. Jersild, and T.R. McConnell. *Educational Psychology.* New York: MacMillan, 1950.

9. Haggard, E.A. "On the Application of Analysis of Variance to GSR Data." *J. Exper. Psychol.*, 1949, 39, pp. 378-392, 861-867.

10. Humphrey, in Fruchter, B. *Introduction to Factor Analysis.* New York: Van Nostrand, 1954, pp. 79-80.

11. Johnson, E.E. and F.C. Sumner, "Sex Differences in Level of Aspiration and in Self Estimates of Performance in a Classroom Situation," *J. Psychol.*, 1949, 27, pp. 483-490.

12. Jones, H.E. "The Galvanic Skin Reflex in Infancy." *Child Develop.*, 1930, 1, pp. 106-110.

13. Jones, H.E. "The Study of Patterns of Emotional Expression." In Reymert, M.L. (Ed.) *Feelings and Emotions* (The Mooseheart Symposium). New York: McGraw-Hill, 1950, pp. 161-168.

14. Kelley, Truman L. Fundamentals of Statistics. Cambridge, Mass.: Harvard Univ. Press, 1947.

15. Klausmeier, Herbert J. *An Analysis of Learning Efficiency in Arithmetic of Mentally Retarded Children in Comparison with Children of High and Average Intelligence.* U. S. Office of Educ. Proj. 484-2260.

116. Lacey, J. I. "The Evaluation of Autonomic Responses: Toward a General Solution." *Ann. N.Y.* Acad. Sci., 1956, 67, pp. 123-164.

17. Lacey, J. I. "Psychophysiological Approaches to the Evaluation of Psychotherapeutic Process and Outcome." Unpubl. paper, Fels Inst., 1958.

18. Lacey, J. I. and B. C. Lacey. "The Relationship of Resting Autonomic Activity to Motor Impulsivity." *The Brain and Human Behavior, Proceedings of the Ass'n. for Research in Nervous and Mental Diseases*, 1958, 36, pp. 144-209.

19. Lacey, J. I. and B. C. Lacey. "Verification and Extension of the Principle of Autonomic Response-Stereotypy." *Amer. J. Psychol.*, 1958, 71, pp. 50-73.

20. Lacey, O. L. and P. S. Siegel. "An Analysis of the Unit of Measurement of the Galvanic Skin Response." *J. Exper. Psychol.*, 1949, 39, pp. 122-127.

21. Landis, C. "An Attempt to Measure Emotional Traits in Juvenile Delinquency." In Lashley, K. S. *Studies in the Dynamics of Behavior*. Chicago: Univ. Chicago Press, 1932, pp. 265-323.

22. Martin, B. "Galvanic Skin Conductance as a Function of Successive Interviews." *J. Clinic. Psychol.*, 1956, 12, pp. 91-94.

23. Marzolf, S. S. and L. W. Walter, "The Relation of Sex, Age, and School Achievement to Levels of Aspiration," *J. Educ.* Psychol., 1951, 42, pp. 285-292.

24. McLachlan, D. G. "Emotional Aspects of the Backward Child," *Amer. J. Ment. Defic.*, 1955, 60, pp. 323-330.

25. Raimy, V. C. *The Self-Concept as a Factor in Counseling and Personality Reorganization.* Unpubl. Ph.D. dissert., Ohio State Univ., 1943.

26. Rogers, Carl R. *Client-Centered Therapy*. Boston: Houghton Mifflin, 1951.

27. Sears, P. S. "Levels of Aspiration in Academically Successful and Unsuccessful Children," *J. Abn. Psychol.*, 1940, 35, pp. 498-536.

28. Snygg, Donald, and Arthur W. Combs. *Individual Behavior.* New York: Harper, 1949.

29. Taylor, D.W. (Chm.) "Education for Research in Psychology." Prepublic. Copy, Report of a Seminar Sponsored by the Education and Training Board of the American Psychological Association and Supported by a Grant from the Carnegie Corporation, 1959.

30. Taylor, Donald M. Consistency of the Self-Concept. Unpubl. Ph.D. dissert., Vanderbilt Univ., 1953.

31. Taylor, Janet. "A Personality Scale of Manifest Anxiety." J. Abnorm. Soc. Psychol., 1953, 48, pp. 285-290.

32. Theisen, J.W. and R.K. Meister. "A Laboratory Investigation of Measures of Frustration Tolerance of Pre-Adolescent Children." J. Genet. Psychol., 1949, 75, pp. 277-291.

33. Thurstone, L.L. Multiple-Factor Analysis. Chicago: Univ. Chicago Press, 1947.

34. Wechsler, D., L.M. Crabbs, and R.G. Freeman, Jr. "Galvanic Response in Pre-School Children." J. Genet. Psychol., 1930, 38, pp. 203-222.

1) Esterline-Angus Co., Inc. Indianapolis, Ind., 1957.

2) Hunter Mfg. Co., Inc. Iowa City, Iowa, 1957.

3) Technical Sales, Inc. Detroit 35, Mich., 1957.

APPENDIX A

Child's Self-Concept Rating Sheet, 1957-1958

Name ______________________ **Examiner** ______________________

Date ______________________

Administer either orally or in written form, as seems most suitable. Child can point to proper areas of scales.

1. **How good are you at learning arithmetic?**
Among the best **Among the poorest**

2. **How good are you at learning English, spelling, writing?**
Among the best **Among the poorest**

3. **How good are you at learning to read?**
Among the best **Among the poorest**

4. **How well do you think other boys and girls like you?**
Among the best **Among the poorest**

5. **How well do you think grown-ups like you?**
Among the best **Among the poorest**

6. **How good are you in sports, games, or playground activities?**
Among the best **Among the poorest**

7. **How much of a leader are you among the other boys and girls?**
Among the best **Among the poorest**

8. **How intelligent, bright, or smart are you?**
Among the best **Among the poorest**

Child's Self-Concept Rating Sheet, 1958-1959

Name ______________________ **Examiner** ______________________

Date ______________________

Administer either orally or in written form, as seems most suitable. Child can point to proper areas of scales. Child's comparisons should be made in relation to the children in his own classroom.

1. How good are you at learning arithmetic?

Among the best **Average** **Among the poorest**

2. How good are you at learning English, spelling, writing?

Among the best **Average** **Among the poorest**

3. How good are you at learning to read?

Among the best **Average** **Among the poorest**

4. How well do you think other boys and girls like you?

Among the best **Average** **Among the poorest**

5. How well do you think grown-ups like you?

Among the best **Average** **Among the poorest**

6. How good are you in sports, games, or playground activities?

Among the best **Average** **Among the poorest**

7. How much of a leader are you among the other boys and girls?

Among the best **Average** **Among the poorest**

8. How intelligent, bright, or smart are you?

Among the best **Average** **Among the poorest**

APPENDIX B

Psychologist's Rating Sheet, 1957-1958

Name ____________________ Rorschach ________ TAT ______ Fig. Dr. ______
Date of
Evaluation ________________ Data rated: 1) ______________________
2) ______________________
Tested by ________________ 3) ______________________
Etiology: Primary __________ Secondary __________ Unknown __________

A. EMOTIONAL ADJUSTMENT Excellent ———————— Poor

B. ACHIEVEMENT Above expectancy ———————— Under expectancy

C. INTEGRATION OF SELF CONCEPT Well-organized ———————— Poorly-organized

D. EXPRESSION OF EMOTION Extrovert ———————— Introvert

E. PATTERN OF BEHAVIOR Aggressive ———————— Withdrawn

F. CHILD'S ESTIMATE OF OWN ABILITIES Over ———————— Under

G. ESTIMATE OF CHILD'S REAL ESTIMATE OF OWN ACHIEVEMENT AND INTELLIGENCE: (high) ———————— low

a. Arithmetic ————————
b. Reading ————————
c. Spelling, writing, grammar (English) ————————
d. Intelligence ————————
e. Sports, games, playground ————————
f. Estimate of being accepted by peers ————————
g. Estimate of being accepted by adults ————————
h. Leadership ————————

Comments:

Psychologist's Rating Sheet, 1958-1959

Name ______ Rorschach ____ TAT ____ Fig. Dr. ____

Date of Evaluation ______ Data rated: 1) ______

2) ______

Tested by ______ 3) ______

Etiology: Primary ______ Secondary ______ Unknown ______

A. EMOTIONAL ADJUSTMENT	Excellent	Poor
B. ACHIEVEMENT	Above expectancy	Under expectancy
C. INTEGRATION OF SELF-CONCEPT	Well-organized	Poorly-organized
D. EXPRESSION OF EMOTION	Extrovert	Introvert
E. PATTERN OF BEHAVIOR	Aggressive	Withdrawn
F. CHILD'S ESTIMATE OF OWN ABILITIES	Over	Under
G. ACCEPTANCE OF SELF	High degree	Low degree
H. SENSITIVITY TO OTHERS (EMPATHY)	Much	Little

Comments:

APPENDIX C

Teachers' Ratings of Children's Achievement, 1957-1958

Name of child ______________________________ **Date of rating** ________________

Name of teacher ______________________________

Please place a check on each scale which represents your most accurate estimate of this child's achievement in the areas indicated.

1. **Check your estimate of this child's achievement or performance in games, sports, or playground activities.**

Among the very best **Among the poorest**

2. **Check your estimate of this child's acceptance by his peers.**

Highly popular **Very unpopular**

3. **Check your estimate of how well this child is accepted by adults.**

Very well liked **Greatly disliked**

4. **Check your estimate of the leadership this child exhibits with other children--in general, rather than in one or two specific sports or activites.**

Marked leadership **Exhibits no leadership**

Teachers' Ratings of Children's Achievement, 1958-1959

Name of child ______________________ Date of rating ______________________

Name of teacher ______________________

Please place a check on each scale which represents your most accurate estimate of this child's achievement in the areas indicated, in relation to the children in his own classroom. Each mark represents 10 per cent of the classroom group. Do not mark on one of the ten dividing lines: check between any two.

1. How good is this child's achievement or performance in games, sports, or playground activities?

Among the very best Average Among the poorest

2. How well is this child accepted by other children in your classroom?

Highly popular Average Very unpopular

3. How well is this child accepted by adults?

Very will liked Average Greatly disliked

4. How much leadership does this child exhibit (in general, rather than in one or two specific sports or activities)?

Marked leadership Average Exhibits no leadership

5. How well does he do in English, spelling, writing?

Among the best Average Among the poorest

6. How well does he do in arithmetic?

Among the best Average Among the poorest

7. How well does he do in reading?

Among the best Average Among the poorest

8. How does he compare with the others in his room in intelligence?

Among the highest Average Among the lowest

APPENDIX D

Name ______________________________

CHILD'S SELF-INVENTORY

Date ______________________________

(MANIFEST ANXIETY SCALE)

Teacher ______________________________

Directions: Read each question carefully as I read it. Then put a circle around the word YES if you think it is true about you. Put a circle around NO if you think it is not true about you.

YES NO 1. I get tired easily.
YES NO 2. I have bad dreams.
YES NO 3. I get headaches.
YES NO 4. I blush easily.
YES NO 5. I like everyone I know.
YES NO 6. I notice my heart beats very fast sometimes.
YES NO 7. At times I feel like shouting.
YES NO 8. I wish I could be very far from here.
YES NO 9. Others seem to do things easier than I can.
YES NO 10. I would rather win than lose in a game.
YES NO 11. I am secretly afraid of a lot of things.
YES NO 12. I feel that others do not like the way I do things.
YES NO 13. I feel alone even when there are people around me.
YES NO 14. I have trouble making up my mind.
YES NO 15. I get nervous when things do not go the right way for me.
YES NO 16. I worry most of the time.
YES NO 17. I am always kind.
YES NO 18. I worry about what my parents will say to me.
YES NO 19. Often I have trouble getting my breath.
YES NO 20. I get angry easily.
YES NO 21. I always have good manners.
YES NO 22. My hands feel sweaty.
YES NO 23. I have to go to the toilet more than most people.
YES NO 24. Other children are happier than I.
YES NO 25. I worry about what other people think about me.
YES NO 26. I have trouble swallowing.
YES NO 27. I have worried about things that did not really make any difference later.
YES NO 28. My feelings get hurt easily.
YES NO 29. I worry about doing the right things.
YES NO 30. I am always good.
YES NO 31. I worry about what is going to happen.
YES NO 32. It is hard for me to go to sleep at night.
YES NO 33. I worry about how well I am doing in school.

YES NO 34. I am always nice to everyone.
YES NO 35. My feelings get hurt easily when I am scolded.
YES NO 36. I tell the truth every single time.
YES NO 37. I often get lonesome when I am with people.
YES NO 38. I feel someone will tell me I do things the wrong way.
YES NO 39. I am afraid of the dark.
YES NO 40. It is hard for me to keep my mind on my school work.
YES NO 41. I never get angry.
YES NO 42. Often I feel sick in my stomach.
YES NO 43. I worry when I go to bed at night.
YES NO 44. I often do things I wish I had never done.
YES NO 45. I feel I have to be best in everything.
YES NO 46. I often worry about what could happen to my parents.
YES NO 47. I never say things I shouldn't.
YES NO 48. It is hard for me to keep my mind on anything.
YES NO 49. It is good to get high grades in school.
YES NO 50. I get nervous when someone watches me work.
YES NO 51. I am nervous.
YES NO 52. I never lie.
YES NO 53. I often worry about something bad happening to me.

APPENDIX E

GSR OPERATOR'S OBSERVATION FORM

Name ______________________ Observer ______________________ Date ______________________

	SUBTRACT. RET.								PROMBLEM-SOLVING													
	bf	la	1	2	3	4	5	6	su	1	2	3	4	5	6	7	8	9	10	11	12	
Ques. or remark about item																						
Ques. or remark unrelated to item																						
Asks help																						
Not working on prob.																						
Lip move. or vocalized figuring																						
Figuring on fingers																						
	bf	la	1	2	3	4	5	6	su	1	2	3	4	5	6	7	8	9	10	11	12	
Sign, Yawn, Grunt, Hum																						
Stutter, stammer, waver																						
Talks freely																						
Chatters																						
Stiff and immobile																						
Smiles at E, GSR, or while works																						
Frowns at E, GSR, or while works																						
	bf	la	1	2	3	4	5	6	su	1	2	3	4	5	6	7	8	9	10	11	12	
Scratches or picks anything																						
Moves feet																						
Moves body																						
Bites lip or grinds teeth																						
Sucks or chew finger or pencil																						

Comments:

APPENDIX F

November 6, 1958

Dear Miss __________:

According to self-ratings given to us by (subject) last year, his estimate of himself is not realistic. Since it is generally accepted that boys and girls with realistic self concepts tend to be happier and to do better in school than those who are unrealistic, we are passing this information on to you.

(Subject) has over-rated himself in arithmetic, language, and reading achievement. He has underestimated his leadership ability and his acceptance by other children. A sociometric device indicates that he is among those most frequently chosen as a friend, but it appears that he does not realize this, since he rates himself as only slightly above average in acceptance.

If there seems to be room for improvement in (subject's) attitudes toward himself, his peers, or his school life in general, an attempt to help him realize that he is very well liked by others may bring about changes in the direction of greater happiness and achievement. This might be done by placing him in positions of leadership in classroom projects, by giving him special responsibilities, by complimenting him on tasks well done, and the like.

Even though he apparently does not feel decidedly inferior socially, his tendency to over-rate himself in school achievement may represent an attempt to compensate for some social relationships that seem to him not entirely satisfactory. Bringing his social self-concept up to the high level of reality may help him to accept his average school achievement realistically.

We do not know, of course, how much the school can do, compared with home influences, to aid the children in more realistic thinking about themselves. We are also sure that teachers often employ the techniques suggested above as part of their usual procedure and have methods of their own which work towards the solution of this problem.

We will keep you informed of (subject's) self-estimates as we gain them this year.

Sincerely yours,

T.A. Ringness
Project Director

November 6, 1958

Dear Miss ____________:

According to self-ratings given to us by (subject) last year, his estimate of himself is not realistic. Since it is generally accepted that boys and girls with realistic self concepts tend to be happier and to do better in school than those who are unrealistic, we are passing this information on to you.

(Subject) has over-rated himself in arithmetic and language achievement. He has also overestimated his leadership ability and his skill in sports and playground activities.

In his ratings he may be either portraying his ideal self, thus compensating for known lower achievement, or he may actually believe that he has greater achievement than is the case. If he is generally happy in school, cheerful, willing to volunteer in class or for projects, he may well be highly self-confident. On the other hand, if he tends to worry, is somewhat moody, tends to withdraw, dislikes school, or fails to carry out assignments, he may actually lack confidence.

If compensating, he needs to feel that he is not inferior to the other children in his class, nor is he morally wrong for not achieving as well as some. If over-confident, perhaps more attention might be paid to helping him see his actual progress, discussing with him his strengths and weaknesses. De-emphasis of the competitive aspect of marks and grading, providing individual information on achievement, and consideration of the readiness and work level of the child are useful techniques.

We do not know, of course, how much the school can do, compared with home influences, to aid the children in more realistic thinking about themselves. We are also sure that teachers often employ the techniques suggested above as part of their usual procedure and have procedures of their own which work towards solution of this problem.

We will keep you informed of (subject's) self-estimates as we gain them this year.

Sincerely yours,

T. A. Ringness
Project Director